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REPORT OF ACTIVITIES

1985

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FOREWORD

The purpose of the Mines and Minerals Branch Report of Activities is to provide, in a single publication, detailed summaries of current mineral-related research being conducted or co-ordinated by this Department. The primary vehicle for these programs since 1984 has been the Federal-Provincial Mineral Development Agreement. In this regard, staff of the federal Department of Energy, Mines and Resources are equal partners in both the co-ordination and generation of many of the documented projects.

It is significant to note the wide range of marketable commodities addressed and the comprehensive extent of geographic locations across the Province where studies are ongoing. Also, it is satisfying to point out that land use and public awareness programs are included and are becoming an integral part of our research efforts.

As in the past, I commend this publication to your attention with the hope that its contents confirm out intention to provide promotional and supplimentary resource information that will assist in the positive expansion of mineral production in Nova Scotia.

Joel R. Matheson

Joel R. Matheson, Q. C.
Mininster of Mines and Energy

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SUMMARY OF ACTIVITIES OF THE COAL RESOURCES SECTION, ENERGY RESOURCES DIVISION

K. S. Gillis

Under the Canada - Nova Scotia Mineral Development Agreement (CNSMDA) three projects proposed by the Coal Resources Section of the Energy Resources Division have been implemented. The projects include the federally funded Coal Database and Seismic Surveys, and the provincially funded Oil Shale Assessment.

The Coal Resource Section of the Nova Scotia Department of Mines and Energy carried out studies on the coalfield geology of the various coal basins within the Province.

In addition, the Peatland Inventory is in the final stages of a report on the fuel peat deposits of the Province.

COAL DATABASE*

A program to develop a comprehensive computer database of coal exploration and analytical data from the Nova Scotia coalfields was initiated under the direction of the Geological Survey of Canada, Institute of Sedimentary and Petroleum Geology (ISPG) in Calgary (Hughes et al., this volume).

SEISMIC SURVEYS*

Shallow seismic reflection surveys were conducted at several locations in the Cumberland Basin. Equipment used included a 24 channel seismograph, a digital tape recorder and explosive charges as the seismic source. These surveys were test runs to determine the seismic transmission characteristics of the basin strata. Eight kilometres of test line were run during the summer field season by the Resource Geophysics and Geochemistry Section of the Geological Survey of Canada in Ottawa. During the next four years regional and detailed seismic work will be conducted in this area for structural information.

High resolution reflection seismic lines were run in the submarine extensions of the Port Hood and Inverness coalfields to determine their offshore structural character. The work was contracted by the Geological Survey of Canada to Geomarine Associates Limited and the service of a 42 metre vessel was employed. Equipment used in the survey included a multichannel seismograph with a 16-24 kilojoule sparker power source. Twenty-six line kilometres were run at Port Hood and 87 line kilometres at Inverness. The results of this work are still being compiled and evaluated.

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*Funded by Energy, Mines and Resources Canada under the Canada - Nova Scotia Mineral Development Agreement

OIL SHALE ASSESSMENT*

The third project of the Mineral Development Agreement is the assessment of the oil shale deposits within the Province. This three year study is designed to determine the quality and quantity of the various oil shale occurrences (Naylor et al., this volume).

COALFIELD GEOLOGY

Studies of the stratigraphy and sedimentation of the provincial coalfields continued in the Springhill, Debert-Kemptown and Pictou coalfields.

A detailed geological map of the Springhill coalfield is scheduled to be published in 1986. A single hole was drilled at Springhill to investigate the stratigraphy between the Number 2 and underlying Numbers 6 and 7 seams. Samples of this hole have been sent for palynological identification.

Some reconnaissance work was carried out on the sedimentology of the western end of the Debert-Kemptown Basin (Calder, this volume). Studies of the sedimentation of the basin and its margin will allow depositional modelling and definition of the geology and coal exploration potential of this basin.

In the Pictou coalfield a reassessment of the stratigraphy and a study of the sedimentation of the basin has been undertaken using previously unavailable information generated by the recent coal exploration activity of Suncor Incorporated. It is expected that the results of this work will further define the tectonic history of this graben structure and the mode of coal formation within the basin.

Suncor Incorporated has recently completed exploration and is currently undertaking feasibility studies related to future mine developments.

Pioneer Coal Company Limited continues to operate a small open pit mine on the Acadia seam in Westville. Work began this year on a new box cut and production was achieved late in the fall of this year.

At Maple Brook, Inverness County, a small coal occurrence was investigated by diamond-drilling (MacNeil, this volume). The results of the drilling negates chances of commercial coal in this syncline but adds new information on the Canso-Riversdale transition.

PEATLAND INVENTORY

The Peatland Inventory study completed field work on the fuel peat potential of the Province in 1984. Compilation and computerization of field data has been completed and a final report is expected in 1986.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

STRATIGRAPHIC AND COAL-RELATED STUDIES IN THE SPRINGHILL COALFIELD, CUMBERLAND BASIN

J. H. Calder

INTRODUCTION

Geological studies undertaken in the Springhill coalfield during the past year include (1) ongoing studies of depositional environments and processes of coal formation, (2) detailed mapping of strata in and around the coalfield, encompassing 100 km^2 of the Cumberland Basin, and (3) diamond-drilling.

DEPOSITIONAL STUDIES

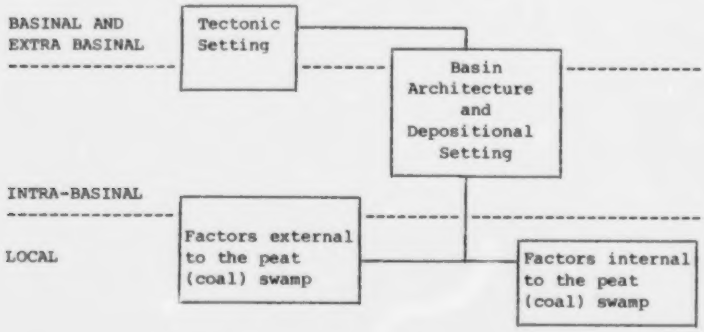
The stratigraphy, sedimentology and coal petrography of the Springhill coalfield form the basis of an M.Sc. thesis currently being written by the author under the supervision of Dr. Martin Gibling, Dalhousie University. Continuing geological investigations by the author at Springhill have generated three levels of stratigraphic/depositional models. The first, a diagrammatic reconstructed stratigraphic section, illustrated the southerly progressive onlap of coal seams over marginal fanglomerates (Calder, 1981a and b). The second-level models developed were three-dimensional block diagrams, which attempted to place the various depositional systems in their proper paleogeographic context. A model (Calder, 1982) with fluvial drainage patterns predominantly transverse to the basin margin (with the Cobequid Highlands) was subsequently abandoned in favour of one dominated by a longitudinal, trunk fluvial system and relatively minor transverse, basin-margin drainage (Calder, 1984). Extrapolation of this model led to a tangential hypothesis of basin architecture (Calder, ibid.), incorporating two distinct coal depositional environments, namely (1) the alluvial apron coals at Springhill and (2) the bivalve-associated coals of the Joggins-Chignecto coalfield, Salt Springs and Roslin districts, and perhaps the earliest Springhill coal seams.

With these earlier models as foundations, a third-level dynamic model has now been formulated. The processes that contributed to the formation of coal seams can now be deduced through careful analysis of regional basin setting, sedimentology of penecontemporaneous strata and coal petrography. The factors identified to date are too numerous to describe in detail,however, a four-level hierarchial grouping is summarized in Table 1. Level four (internal) and level three (external) processes are to a large degree interrelated, and are generally dependent upon the larger scale processes of levels one and two.

SPRINGHILL MAP SHEET

A detailed geology map is being prepared for a 100 km^2 area of the Cumberland Basin, encompassing the Springhill coalfield, Salt Springs coal district and intervening Black River diapir. The map is based upon 1:10 000 coal outcrop mapping by the author undertaken during the period

Table 1. Hierarchial summary of factors that affected the formation of coal in the Springhill coalfield.


BASINAL AND
EXTRA BASINAL
Tectonic Setting
Basin Architecture and Depositional Setting
INTRA-BASINAL
Factors external to the peat (coal) swamp
LOCAL
Factors internal to the peat (coal) swamp

1979-1985. In 1984 field mapping concentrated in the Salt Springs district (northeast map quadrant), and in 1985 in the eastern and southeastern regions of the map sheet. The final map will be published at a scale of 1:10 000 or 1:20 000, and will be compatible with the forthcoming larger scale Cumberland Basin map sheets.

DIAMOND-DRILLING

During 1985, one drillhole was completed in the Springhill coalfield. SH99 was drilled to a total depth of 278 metres, intersecting the No. 2 seam crown pillar near surface, and the No. 7 and 6 seams at depth. It has provided previously unavailable core of the interval between these seams and will be used for detailed lithofacies analysis as well as palynological sampling to complement the study by Dolby (1984). Proximate analyses of the numerous seams intersected in this hole are not available at the time of writing.

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Dolby, G.
1984: Palynological examination of 60 samples from the Springhill coalfield, Nova Scotia; Robertson Research Canada Limited, unpublished Report RRC/84/2238, 17 p.

PRELIMINARY OBSERVATIONS ON THE SEDIMENTOLOGY OF SELECTED SITES WITHIN THE DEBERT-KEMPTOWN COAL BASIN

J. H. Calder

INTRODUCTION

The Debert-Kemptown coal basin (Fig. 1) is an elongate basin of 220 km^2, bounded on the north by the Cobequid-Chedabucto Fault and Cobequid Highlands, and on the south by the Portapique Fault. In the western and central parts of the basin, the major structural feature is the Debert River Syncline. The strata of this basin have been assigned both to the Cumberland and Pictou Groups (Bell, 1958; Stevenson, 1958), chiefly on the basis of age rather than lithology. Recent geological maps (Keppie, 1979; Donohoe and Wallace, 1982) assign the strata to the Pictou Group. Lortie (1979) proposed these strata be assigned to an informal Delaney Formation. The age of the strata determined through palynology by Barss (Donohoe and Wallace, 1982) varies from early Westphalian B in the south and east, to Westphalian C in the west.

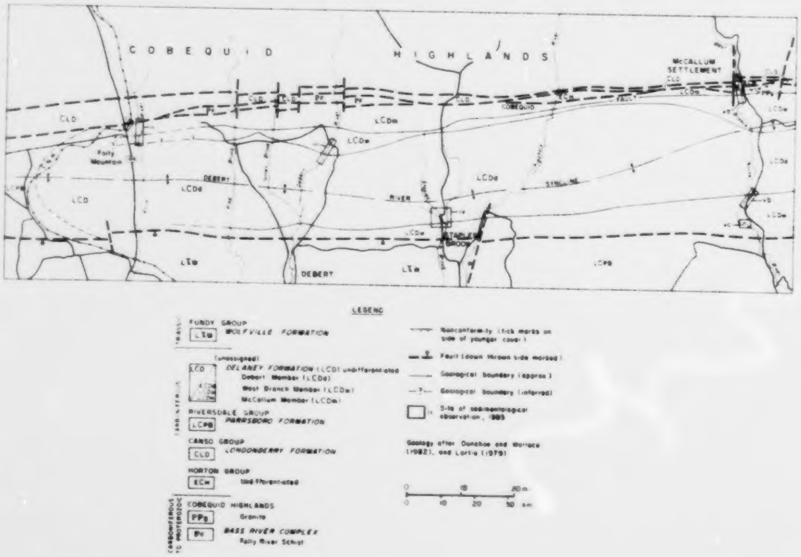

COBEQUID
HIGHLANDS
McCALLUM SETTLEMENT
Folly Mountain
DEBERT
RIVER
SYNCLINE
STAPLES BROOK
DEBERT
CLD
LCDm
LCDw
LCDd
LCD
LTw
LCPB
LEGEND
FUNDY GROUP
LTw WOLFVILLE FORMATION
(unassigned)
LCD DELANEY FORMATION (LCD) undifferentiated
Debert Member (LCDd)
West Branch Member (LCDw)
McCallum Member (LCDm)
RIVERSDALE GROUP
LCPB PARRSBORO FORMATION
CANSO GROUP
CLD LONDONDERRY FORMATION
HORTON GROUP
ECH Undifferentiated
COBEQUID HIGHLANDS
PPg Granite
BASS RIVER COMPLEX
Folly River Schist
CARBONIFEROUS TO PROTEROZOIC
Nonconformity (tick marks on side of younger cover)
Fault (down thrown side marked)
Geological boundary (approx.)
Geological boundary (inferred)
Site of sedimentological observation, 1985
Geology after Donohoe and Wallace (1982), and Lortie (1979)
0 10 20 mi
0 10 20 30 km

Figure 1. Geological map and selected sites within the western part of the Debert-Kemptown coal basin.

High volatile B bituminous coals were mined sporadically at Debert, Belmont (Chiganois River), Coal Mine Brook and Kemptown. Descriptions of these operations are included in Stevenson (1958), however it is unknown whether these deposits are isolated or continuous. Consequently, the geology of the basin and coal seam(s) is poorly understood.

A preliminary investigation of the sedimentology of selected sites within the basin was begun in 1985 as a first step in documenting the geological setting of these coals as an aid to future exploration. Strata representing the three members of the Delaney Formation proposed by Lortie (1979) in the west half of the basin were examined. These members in ascending order are: (1) the basal, conglomeratic McCallum Member, (2) the coal-bearing West Branch Member and (3) the upper, reddish Debert Member. At the sites examined, the members exhibit distinctly different lithofacies assemblages.

Field outcrop areas examined are: (i) the CN Railway cut near Folly Mountain cemetery; (ii) Folly River (north limb of syncline); (iii) Debert River near the site of past mining and 1970s Coal Inventory drilling (north limb); (iv) Staples Brook (south limb), and (v) West Branch of North River at the (a) northern basin margin, (b) central basin and (c) southern limb (Fig. 1). A preliminary list of lithofacies recognized in the Debert-Kemptown Basin is presented in Table 1.

PRELIMINARY SEDIMENTOLOGY OF BASIN MARGIN STRATA

The sedimentology of basal rocks at the northern basin margin (sites ii and v) is depicted in Figures 2 and 3. On Folly River (Fig. 2a) approximately 145 m of extra-basinal cobble, and rarely boulder, conglomerates are exposed as isolated cliffs 20 to 30 metres high. The conglomerates grade upward from clast to matrix supported (Gc and Gm), and then fine above 135 metres to pebble conglomerate. Bedding in the high cliffs is difficult to discern, not well developed and largely inaccessible but appears to be crudely trough crossbedded (large-scale) to planar.

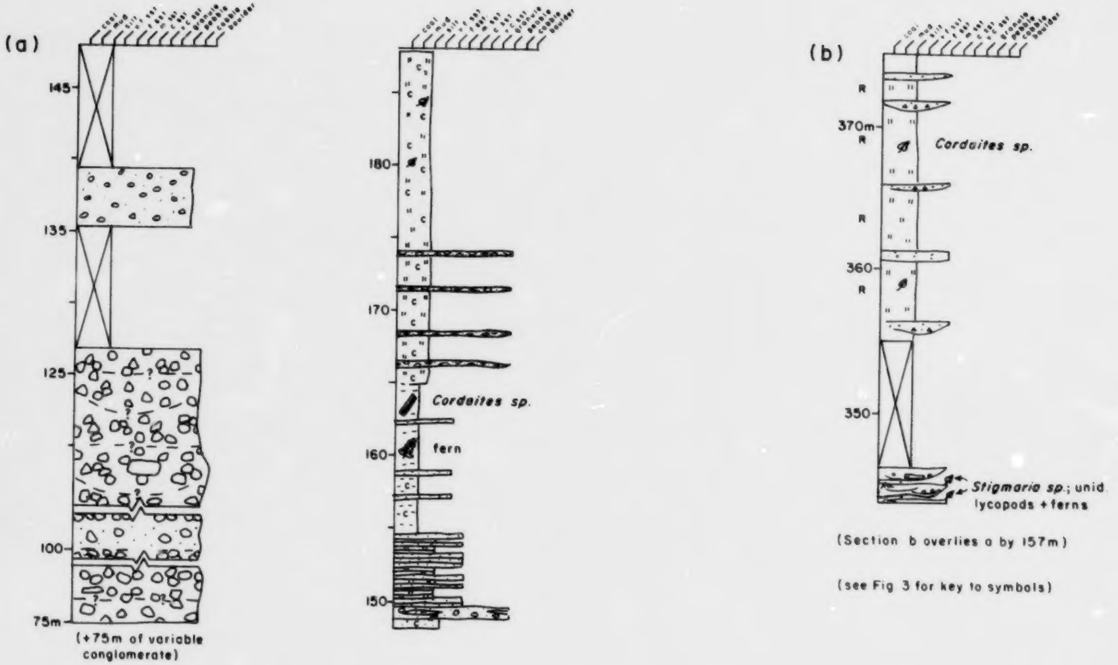
Clasts are predominantly granite and quartzite with subordinate diorite and gabbro. These are probably locally derived from Cambrian granites, Proterozoic Gamble Brook schist and other components of the Cobequid Highlands to the north (H. V. Donohoe, Jr., personal communication).

At a point approximately 148 metres from the base of the conglomerates (Fig. 2a), there is a distinct change in lithofacies, marked by 10 cm thick beds of Si, Fc(g) and Sp overlain in turn (at 165 m) by thin 10 cm thick solitary beds of facies Gm, similar in composition to the basal conglomerates previously described. High in the section at approximately 335 metres (Fig. 2b), siltstone (Fg and Fc(g)) is dominant with occasional deep scours containing Se.

On the West Branch of the North River near McCallum Settlement (site Va), the basin margin contact (nonconformity?) between Cambrian granite (Donohoe and Wallace, 1982) and basal conglomerates of the McCallum members is exposed. Clast composition is similar to that described above Folly River with the immediately overlying strata of a 30 metre upward-fining

Table 1. Preliminary list of observed lithofacies of the Debert-Kemptown basin (west half).

Code	Lithofacies	Grain Size	Colour	Sedimentology Structures	Fossil Content	Site(s) (see text)	Member of Lortie (1976)
Gm	matrix-supported extra-basinal conglomerate	pebble to cobble	var. grey	crude planar to large-scale trough crossbeds		i, ii, vm	McCallum
Gmt	matrix-supported extra-basinal conglomerate	granule	var. grey	well developed shallow trough crossbeds		vm	McCallum
Gmg	stratified, graded extra-basinal conglomerate (with interstratified sandstone)	granule	grey	planar crossbeds (large-scale)	large (0.5m diameter rafted(?)lycopod trunks (rare?)	vc	West Branch
Gc	clast-supported, extra-basinal conglomerate	pebble to boulder	var. grey	massive?		i, ii	McCallum
Se	moderately sorted sandstone with matrix supported intraformational clasts	medium to coarse	grey	deep scours	rafted stems of *Calamites sp.* et al.	ii	McCallum/ West Branch transition?
St	thinly bedded, moderate to well sorted sandstone	medium	grey	low angle trough crossbeds		ii, iv	West Branch; Debert
Sp	well sorted, thinly bedded sandstone	fine	grey	tabular, planar	occasional comminuted plant fragments	vb	McCallum/ West Branch transition?
Sr	well sorted, thinly bedded sandstone	coarse silt to fine sand	grey	ripples		vb	McCallam/West Branch transition?
			(rarely reddish-grey)			(iv)	(Debert)
Sd	very thinly bedded, well sorted carbonaceous sandstone with extensive soft sediment deformation	very fine	grey	thin, tabular-planar; also rippled	highly comminuted plants	iii	West Branch
Sb/ Fb	fossiliferous siltstone/ sandstone	silt to very fine sand			chaotic assemblage of *Cordaites sp.*, (*Calamites sp.* ?), and bivalves	VC	West Branch
Si	thinly interlaminated/interbedded mudstone, siltstone and sandstone	mud to fine sand	grey	wavey-planar with large ripples	*Cordaites sp.*	vc	West Branch
Si(r)	thinly interlaminated/interbedded mudstone, siltstone and sandstone	silt and very fine sand	reddish-brown	tabular; occasional ripples		iv	Debert
F(g)	thin to thickly bedded mudstone/siltstone	clay/silt	grey to dark grey	planar	occasional comminuted plants	ii	West Branch?
F(r)	thin to thickly bedded mudstone/siltstone	clay/silt	reddish-brown	planar	occasional comminuted plants	iv	Debert
Fc(g)	carbonaceous mudstone	clay/silt	dark grey	occasional dessication cracks, massive, planar	*Stigmaria sp.* *Neuropteris sp.* *Annularia sp.*, lycopods; well preserved to comminuted	ii, ivc	West Branch
Fc(r)	carbonaceous mudstone	clay/silt	mottled (reddish-brown + grey)	planar, massive	*Cordaites sp.*, moderately preserved to comminuted	ii	West Branch/ Debert Transition
Fs	siderite-banded mudstone	clay/silt	dark grey	planar	?	iii	West Branch
Ccs	carbonaceous to coaly shale, moderately fissile	clay/silt	dark grey to black	laminated	?	vc	West Branch
Cc	clarain (coal)		semi-bright black	normal-banded	?	iii	West Branch



(a)
coal
mud
silt
vf sst
f sst
m sst
c sst
vc sst
granule
pebble
cobble
boulder
145
135
125
100
75m
(+75m of variable conglomerate)
180
170
160
150
Cordaites sp.
fern
(b)
R
370m
R
R
360
R
350
Cordaites sp.
Stigmaria sp.; unid. lycopods + ferns

(Section b overlies a by 157m)

(see Fig 3 for key to symbols)

Figure 2. Vertical profiles of strata exposed on Folly River, northern margin of Debert-Kemptown coal basin (partly schematic).

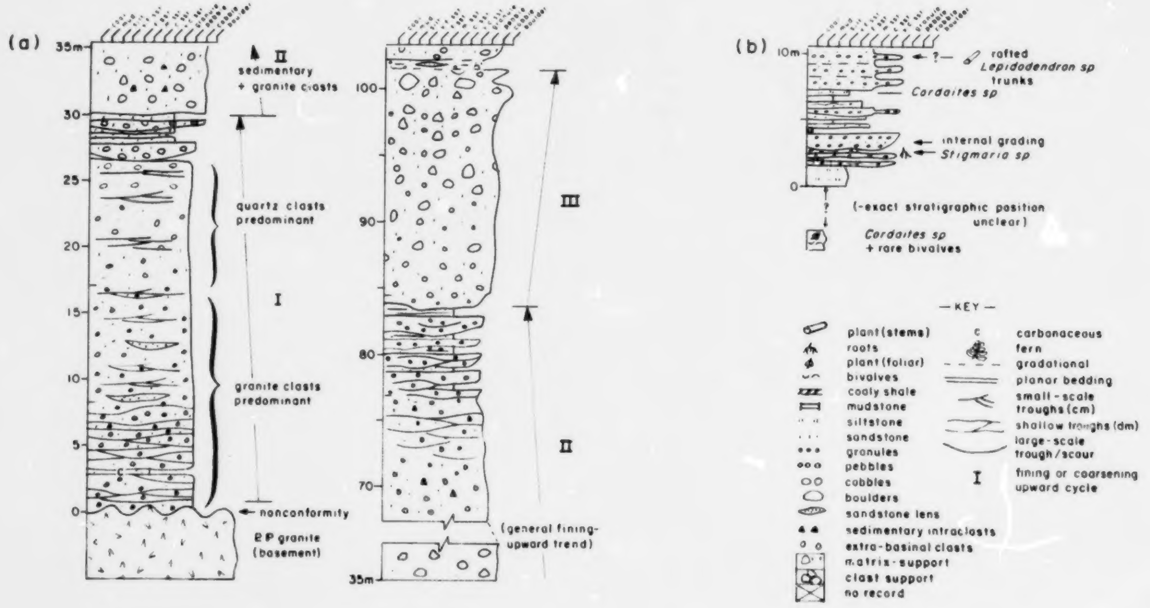

(a)
35m
30
25
20
15
10
5
0
II
sedimentary
+ granite clasts
quartz clasts
predominant
I
granite clasts
predominant
nonconformity
€P granite
(basement)
100
90
80
70
35m
III
II
(general fining-
upward trend)
(b)
10m
0
?
rafted
Lepidodendron sp
trunks
Cordaites sp
internal grading
Stigmaria sp
(-exact stratigraphic position
unclear)
Cordaites sp
+ rare bivalves
— KEY —
plant (stems)
roots
plant (foliar)
bivalves
coaly shale
mudstone
siltstone
sandstone
granules
pebbles
cobbles
boulders
sandstone lens
sedimentary intraclasts
extra-basinal clasts
matrix-support
clast support
no record
c
carbonaceous
fern
gradational
planar bedding
small-scale
troughs (cm)
shallow troughs (dm)
large-scale
trough/scour
I
fining or coarsening
upward cycle

Figure 3. Vertical profiles of strata exposed on West Branch, North River (partly schematic); (a) on north limb of Debert syncline and (b) on south limb of syncline, Debert-Kemptown coalfield. (West Branch Member of Lortie (1979)).

cycle (I in Fig. 3a) composed primarily of clasts apparently identical in composition to that of the exposed Cobequid basement rocks. A second upward-fining cycle (approximately 55 metres thick) and an overlying upward-coarsening cycle (II and III, Fig. 3a) contain also sandstone and gabbro clasts. Crude trough crossbeds are common. The cyclicity and clast lithology variations may be the result of fan lobe switching, entrenchment of fanhead channels and(or) the effect of marginal faulting introducing different rock types to erosion.

At site Vc on the opposite side of the Debert River Syncline (Figs. 3b and 1), strata are exposed that appear to be a combination of facies typical of the McCallum and distal(?) West Branch members of Lortie (1979). Graded, fine quartz pebble conglomerates (Gg) are found interbedded with thin, impure coaly shales (Ccs) and carbonaceous mudstones (Fc(g)). Rafted(?) lycopod trunks (0.37-0.56 m diameter) within facies Gg, as well as other flora from Fc(g) and Ccs, suggest high energy fluvial incursions into a poorly established coal swamp flora. The presence of bivalves with *Cordaites sp.* in facies Fb, is significant as it suggests a lacustrine component of the paleoenvironment.

SUMMARY

The chief goal of the investigation conducted in 1985 was to begin the documentation of the various lithofacies found within the basin, as there have been few descriptions of the sedimentology in the past. Although it is premature at this point to propose a comprehensive depositional model, certain facets of the paleogeographic setting have been identified. Perhaps the most significant of these is the confirmation that alluvial fan deposits are a major component of the basin-fill. Provenance of clasts within the fanglomerates suggests a source area in the Cobequid Highlands.

As yet it is unclear whether coal seams are intercalated with fan deposits, however the interbedded nature of poorly developed swamp deposits with fan-derived conglomerates suggests close proximity of the swamps to the fans on the northern basin margin.

The tripartite member division of Lortie (1979) appears valid on lithologic grounds at the sites examined, however a more comprehensive, regional mapping program will be required to evaluate their validity basin-wide. In light of the uncertainty in assigning the strata to either the Cumberland or Pictou Groups, it is recommended that the informal Delaney Formation be utilized in the interim.

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INVESTIGATION OF MAPLE BROOK COAL OCCURRENCE

D. J. MacNeil

In August-September 1985, two diamond-drill holes totalling 464 metres were completed to investigate a coal occurrence in the Maple Brook Syncline, east of Glendale, Inverness County. This coal was first documented by Hugh Fletcher (1881, 1884). The Nova Scotia Department of Mines Annual Report for 1902 and 1903 record two boreholes drilled for coal in the area. Dowling (1915) refers to this as the Inhabitants River Basin and states "the uppermost seam, which is the largest, is 1 foot 8 inches in thickness". He stated a "probable reserve" of one million tons of coal for this basin.

The Nova Scotia Department of Mines Annual Report of 1932 offers a sketch and photo of a tunnel driven 100 feet on "two coal seams, twenty-one inches 'fall' and fourteen inches 'bench', with a shale parting of fourteen inches". It is also noted that the coal "apparently burns well". No other documentation apparently exists for this attempt at development.

Belt (1962) noted "one 18 inch low-grade seam" near the top of his Emery Brook Formation. Kelley (1967) reported that spores from "the thin coal seam" suggested a Westphalian A age.

The Maple Brook Syncline is an oval-shaped structural basin which has a marked topographic expression due to the differential erosion between prominent sandstone units of the lower part of the Mabou Formation and the fine grained, upper beds of the central basin (Fig. 1). Drilling and mapping indicates that the coal-bearing sequence occupies a small area in the axial region of the syncline.

The two drillholes (MB-85-1 and MB-85-2) cut about 330 metres of section. The section can be generally described as follows:

0-75 m	mudstone; grey to grey-black; calcareous; pyritiferous; rhythmically laminated; containing ostracods/pelecypods; coal-bearing carbonaceous zone from 20 - 25 metres
75-125 m	alternating red and grey mudstone; lithologically similar to above except silty in part; minor thin limestone beds and carbonate nodules common
125-330 m	dominantly red siltstone/mudstone with several two to eight metre thick sandstone members in the lower part; bioturbation and dewatering structures common; lower part is non-calcareous.

The coal-bearing zone is approximately five metres thick. The zone consists of carbonaceous shale with plant fragments, occassional coaly laminae, and one or two 30 - 45 cm thick beds of coaly shale. The zone is extremely pyritic. The pyrite occurs as laminae, fine disseminations and plant replacements.

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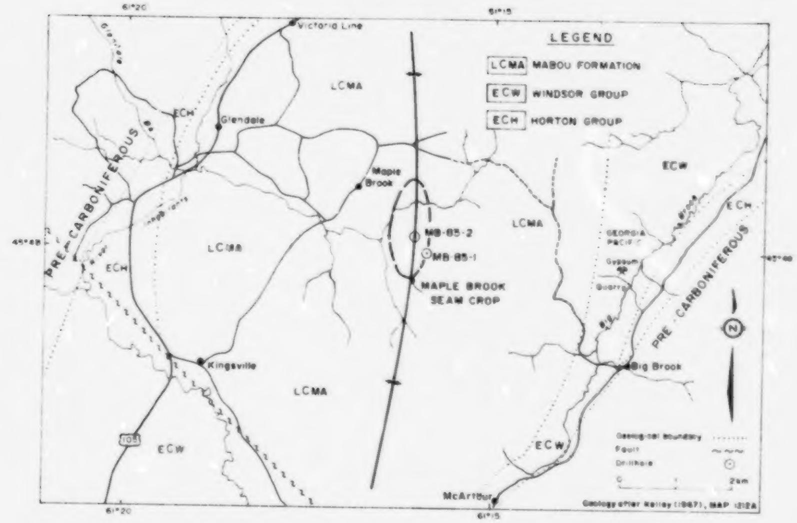
61°20
61°15
Victoria Line
LEGEND
LCMA MABOU FORMATION
ECW WINDSOR GROUP
ECH HORTON GROUP
LCMA
ECH
Glendale
PRE-CARBONIFEROUS
Maple Brook
LCMA
ECW
ECH
MB-85-2
MB-85-1
MAPLE BROOK SEAM CROP
GEORGIA PACIFIC
Gypsum
Quarry
PRE-CARBONIFEROUS
45°48
45°48
ECH
LCMA
Kingsville
Big Brook
LCMA
105
ECW
ECW
Geological boundary
Fault
Drillhole
0
1
2km
McArthur
61°20
61°15
Geology after Kelley (1967), MAP 1212A

Figure 1: Geology of the Maple Brook Syncline at Glendale.

Previous stratigraphic work in this area (Belt, 1962; Kelley, 1967) place this coal occurrence near the Namurian-Westphalian transition ("Cansoan-Riversdalian") which probably makes it the earliest Pennsylvanian "coal" in the Province.

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COMPUTERIZATION OF COAL EXPLORATION DATA FOR NOVA SCOTIA*

*J. D. Hughes**, D. J. MacNeil and P. D. Watson****

Under the Canada - Nova Scotia Mineral Development Agreement, the Institute of Sedimentary and Petroleum Geology (ISPG) of the Geological Survey of Canada has implemented a program proposed by the Nova Scotia Department of Mines and Energy Coal Section designed to develop a comprehensive computer database of coal exploration and analytical data for the Nova Scotia coalfields. Over 100 years accumulation of data for the coalfields exists primarily in hard-copy form in the files of the Nova Scotia Department of Mines and Energy, and the Cape Breton Development Corporation. The problems of storage, handling, and accessibility of such volumes of material are self-evident, just as are the advantages of storing it in a sophisticated computer database.

Over the past several years, the Coal Resource Evaluation Section of ISPG has been developing a coal geological database for the National Coal Inventory. This consists of information from boreholes, outcrops, adits, and trenches as well as coal quality data from analyzed samples. Information from mining operations (e.g. coal seam channel samples) can also be incorporated. Concurrently, computer-based methods for display and manipulation of this information have been developed (Hughes, 1984). Manipulation of the databases will aid in assessment of the geology, depositional setting and resource quantities of Nova Scotia coal deposits.

The project was initiated in February 1985, with the installation at the Nova Scotia Department of Mines and Energy of a CRT terminal connected by 1200 baud dedicated line to the HP-3000 computer at the ISPG in Calgary. A contract geologist and data-entry technician using these facilities, have access to all the necessary software for data collection and display. The geologist uses geophysical logs, core descriptions, outcrop descriptions, etc., to extract, and interpret, according to a consistently defined set of criteria, the required lithological information. All input data is subsequently displayed in hardcopy form for verification.

The 1985-86 program calls for the preparation of computer files of coal exploration data for the Sydney Coalfield and other smaller coalfields of Cape Breton Island (Fig. 1). This entails coding of approximately 800 boreholes of an aggregate length of over 83 000 metres, approximately 100 outcrop descriptions each with about 15 lithologic units, and about 3000 channel samples and descriptions each with an average of six lithologic units with accompanying ply analyses (Table 1). Other analytical data is

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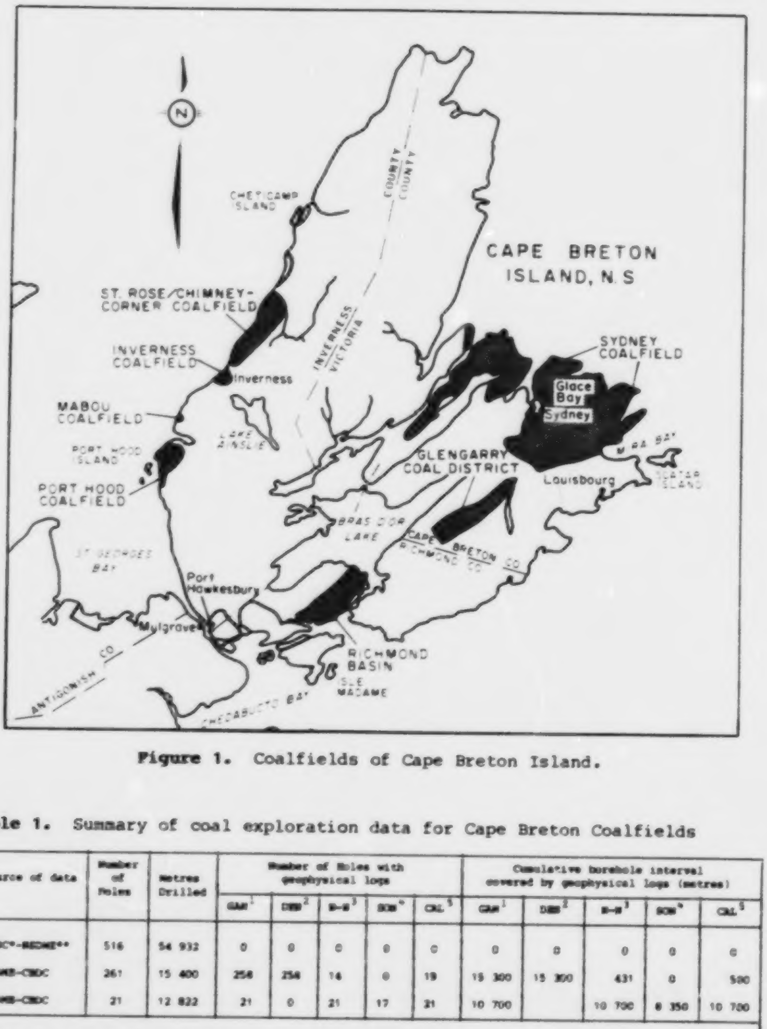
N
CHETICAMP ISLAND
COUNTY
COUNTY
CAPE BRETON ISLAND, N.S
ST. ROSE/CHIMNEY-CORNER COALFIELD
INVERNESS COALFIELD
Inverness
INVERNESS
VICTORIA
SYDNEY COALFIELD
Glace Bay
Sydney
MABOU COALFIELD
LAKE AINSLIE
PORT HOOD ISLAND
PORT HOOD COALFIELD
GLENGARRY COAL DISTRICT
MIRA BAY
SCATARI ISLAND
Louisbourg
BRAS D'OR LAKE
CAPE BRETON CO
RICHMOND CO
ST GEORGES BAY
Port Hawkesbury
Mulgrave
ANTIGONISH CO
RICHMOND BASIN
ISLE MADAME
CHEDABUCTO BAY

Figure 1. Coalfields of Cape Breton Island.

Table 1. Summary of coal exploration data for Cape Breton Coalfields

Source of data	Number of Holes	Metres Drilled	Number of Holes with geophysical logs					Cumulative borehole interval covered by geophysical logs (metres)				
			GAM[1]	DEN[2]	N-N[3]	SON[4]	CAL[5]	GAM[1]	DEN[2]	N-N[3]	SON[4]	CAL[5]
CBDC*-NSDME**	516	54 932	0	0	0	0	0	0	0	0	0	0
NSDME-CBDC	261	15 400	258	258	14	0	19	15 300	15 300	431	0	500
NSDME-CBDC	21	12 822	21	0	21	17	21	10 700		10 700	8 350	10 700
CBDC Channel Sample: 3000 channel samples, each having an average of six lithologic units												
Outcrop descriptions (NSDME): approximately 100 locations, each having approximately 15 lithologic units												

1 Natural gamma
2 Gamma-gamma density
3 Neutron-neutron
4 Sonic
5 Caliper

*Cape Breton Development Corporation
**Nova Scotia Department of Mines and Energy

available for over 1200 samples. As well, detailed topographic, bathymetric and seafloor sediment maps of the Sydney Coalfield are being digitized.

In subsequent years, similar computer files will be generated for the Cumberland and Pictou Coalfields.

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COAL RELATED DRILLING ACTIVITIES, CAPE BRETON

*D. J. **MacNeil***

INVESTIGATION OF THE BONAR (LLOYD COVE) SEAM, POINT ACONI

In March 1985, drilling was conducted at Point Aconi, Cape Breton County under the auspices of the Mining Engineering Division. Five holes totalling 129.5 metres were drilled to delineate the structure of the Upper and Lower Bonar seams, and the lateral variability in thickness and lithology of an interseam parting. All holes were geophysically logged in accordance with coal section practice.

The Bonar (Lloyd Cove) seam occurs near the top of the productive coal measures of the Sydney Mines Formation, Morien Group. At Point Aconi the seam is characterized by a significant parting which is lens-shaped in cross-section (viewed down-dip) and increases from about two metres on the west shore of Point Aconi to nine metres on the east shore. Further southeast, it disappears south of Alder Point. Limited data suggest the axis of this parting trends northeast, conforming to the dominant paleocurrent direction in the coalfield (Forgeron et al., 1982).

Lithologically, the parting consists of interbedded fine- to medium-grained sandstones, siltstones and mudstones, exhibiting distinct coarsening-upward tendencies and containing common silicified plant fragments. These observed features support the work of Gibling and Rust (1984) who interpreted part of this sequence as a levee deposit. The thick, sandy axial zone would appear to represent a proximal channel and the thin mudstone a distal fringe of a levee complex.

The Upper Bonar seam appears to thin toward the axis of the parting. This probably reflects differential compaction of the off-axis mudstones which, in turn, allowed thicker peat deposits to accumulate.

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PRELIMINARY REPORT ON THE OIL SHALES OF THE STELLARTON BASIN, PICTOU COUNTY, NOVA SCOTIA*

R. Naylor, G. Prime and B. Smith

The oil shales of the Stellarton Basin have been examined by various authors including Ells (1909, 1910), Wright (1922), Bell (1924), Flynn (1926), Douglas and Campbell (1942), Potter (1974, 1975, 1976) and Macaulay and Ball (1984).

The present study focuses on the stratigraphy and sedimentology of the oil shales and associated clastics of the Stellarton Group. The information gathered will ultimately be used to outline the geological controls on oil shale deposition within the Stellarton Basin. A brief outline on some of the project activities and findings is presented below.

STRATIGRAPHY

The major lithostratigraphic group outcropping within the Stellarton Basin is the Stellarton Group of Westphalian B-C age. The oil shales are restricted to the grey coal-bearing Westville, Albion, Coal Brook and Thorburn Members (Bell, 1940) of the Stellarton Group. The upper two Members, the Coal Brook and Thorburn, were examined during the 1985 field season.

To date, in excess of 40 individual oil shale units have been identified within the Coal Brook and Thorburn Members. These units vary in thickness from less than one metre to 35 metres. Stratigraphic sections constructed from geological mapping and drillhole information indicate individual units can be traced laterally over minimum distances of three to five kilometres. The lateral continuity of oil shale units makes the investigation of their utilization potential more attractive. In addition, the oil shales provide excellent stratigraphic markers for detailing the stratigraphy, structure and lithofacies variation within the basin.

The clastics associated with the oil shales are not easily traced laterally. This is particularly evident with the sandstone bodies which appear to undergo rapid lateral facies changes on the scale of 100 to 500 metres.

A note of stratigraphic interest is the apparent lateral facies equivalence of the oil shales and coals. Both the McBean and Six-Foot seams (Thorburn Member) and the McLeod seam (Coal Brook Member) can be traced laterally to oil shale units. Conversely there is the possibility that other oil shale units can be traced laterally to significant coal seams.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

LITHOLOGY OF THE OIL SHALES

Macroscopic and microscopic descriptions of the oil shales are being used to develop a classification system for oil shale lithotypes (Table 1). This classification system will ultimately be used to estimate potential hydrocarbon yields as determined by Rock-Eval pyrolysis.

Table 1. Preliminary classification of oil shale lithotypes.

LITHOTYPE	COLOUR	STREAK	FRACTURE STYLE	TOUGHNESS (resistance to fracture)	TEXTURE	APPEARANCE
Oil Shale C	dark grey to black; locally colour-banded dark grey and black	waxy dark grey	planar to irregular	brittle	smooth	non-laminated; exhibits sub-fissility
Oil Shale B	black	waxy light brown	irregular	brittle to tough	smooth	non-laminated; exhibits sub-fissility
Oil Shale A	black	waxy dark brown	irregular to sub-conchoidal	brittle to tough	smooth	non-laminated; exhibits sub-fissility
Torbanite	black with a bluish lustre	waxy dark brown to black	conchoidal	tough; gives a distinct 'ring' when struck with a hammer	smooth to granular	massive; exhibits little fissility
Stellarite	black	waxy brown	irregular	brittle to tough	smooth	laminated; often contorted

In addition to the features listed in Table 1, the presence of fossil flora (e.g. *Cordaites sp.; Lepidodendron sp.; Lepidostrobus sp.; Trigonocarpus sp.)* and fauna (e.g. ostracods, pelecypods, and fish teeth and scales) are noted. Microscopic examination of the oil shales has focused on maceral descriptions using fluorescence microscopy. The organic petrology of the oil shales may show a useful correlation with potential hydrocarbon yields.

LITHOLOGY OF CLASTICS

In general the thickest oil shales occur interbedded with rhythmically laminated siltstone and claystone. Oil shales of intermediate thickness are found interbedded with low angle trough crossbedded rippled sandstone, and wavy to lenticular thinly interlaminated siltstone and sandstone. The thinnest oil shales are generally associated with high angle trough crossbedded sandstone, and massive to cross-stratified pebble to cobble conglomerate.

DEPOSITIONAL ENVIRONMENTS

A lacustrine depositional environment has been interpreted for the oil shales. Evidence which supports this interpretation includes associated clastics (rhythmically laminated claystones) and fauna (paleoniscoid fish scales and teeth). The thickness and lateral extent of individual oil shale units indicate lacustrine conditions were relatively widespread. The lateral facies equivalence between the coals and oil shales suggests many of the lakes were bordered by vegetated swamps.

The clastics associated with the oil shales appear to represent a wide spectrum of depositional environments including deltas, fluvial channels and alluvial fans. Figure 1 illustrates the possible distribution of paleoenvironments during deposition of the Stellarton oil shales.

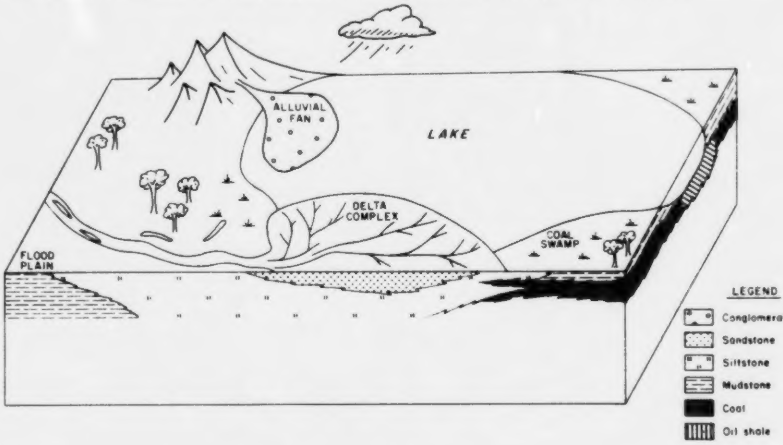

Figure 1. The possible distribution of paleoenvironments during deposition of the Stellarton oil shales.

FORTHCOMING REPORTS

An interim report on the oil shales of the basin is expected to be published in 1986. The report will include a 1:5 000 scale geological map of the east half of the Stellarton Basin.

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MINERAL EXPLORATION MONITORING

J. M. McMullin and P. D. McCulloch

INTRODUCTION

Monitoring of mineral exploration activity is carried out by the Resource Geology Section of the Mineral Development Division. Staff assigned to this program consist of a regional geologist and a project geologist based in the regional office at Stellarton, Pictou County.

The monitoring process includes regular visits to company offices and exploration sites, liaison with industry personnel, and reviews of current assessment reports and other material submitted by industry. An annual statistical survey of exploration expenditures is also carried out to obtain data on costs related to the various sectors in the mineral industry in Nova Scotia (Table 1).

The program of exploration monitoring provides a direct liaison with industry through which the Department is able to maintain an awareness of current exploration activities throughout the Province. Problems and difficulties which may need addressing by the Department are identified, and assistance or advice is provided if necessary.

Part of the monitoring process involves the recording of all diamond-drill core generated in the Province by the various mining exploration companies. When the core is no longer required by the companies, it may be recovered for the Drill Core Library in Stellarton.

Approximately 20 major and 51 junior or private companies held claims or options in 1985, and of these, 11 major and 22 junior companies conducted exploration programs. This represents an increase in activity from 1984 (Tables 2 and 3).

Ten major companies maintained exploration offices in Nova Scotia. Ten offices were also maintained by junior or private companies. In several instances, more than one junior or private company is located in the same office. All ten of the offices of the junior or private companies are the principal exploration headquarters for those organizations.

Companies new to Nova Scotia in 1985 include Cape Breton Sulphur and Lime Corporation, Cobequid Resources Limited, Jascan Resources Incorporated, Megaflo Resources Limited, MER Resources Incorporated, Mono Gold Mines Incorported, Tournigan Mining Explorations Limited and Victoria Resources Corporation. Lacana Mining Corporation closed its New Glasgow exploration office in midyear.

The Riddell group of companies (International Geochemical Associates, French Road Explorations, Louisbourg Property Holdings, Entrepreneurial Management, Meguma Gold Corporation, Whiteburn Precious Metals) announced a merger in the fall of 1985 and are now incorporated as Coxheath Gold Holdings Limited.

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Table 1. Mineral exploration trends in Nova Scotia.

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Assessment work reported for licence renewals (CDN$)	1 600 000	3 800 000	5 900 000	4 700 000	7 564 000	8 441 270	4 107 273	4 200 210	2 625 666	2 389 351
Total exploration expenditures (CDN$)	NA	NA	NA	NA	NA	14 607 662	5 552 675	6 500 000*	7 300 000*	8 000 000*
Total licences issued	1 489	2 894	2 393	1 841	2 559	1 952	1 298	1 350	1 039	1 080*
Number of assessment reports received	70	95	132	126	140	157	124	188	140	108*
Current claims: General	34 434	70 936	38 597	40 497	88 703	68 863	39 626	40 630	26 627	28 950*
Coal	NA	NA	NA	NA	NA	4 880	3 072	4 565	3 584	3 584
Salt, Potash	224	887	1 148	2 256	13 505	5 225	1 065	505	1 257	830
Uranium	21 526	48 721	31 978	30 920	25 483	6 225	0	0	0	0
Total	56 184	120 544	71 723	73 673	127 691	85 193	43 763	45 700	31 468	33 364
Total area held under under licence (acres): (no allowance made for overlapping licences)	2 247 360	4 821 760	2 868 920	2 946 920	5 107 640	3 407 720	1 750 520	1 828 000	1 258 720	1 334 560

***preliminary figures**
NA = Not available

Table 2. Major companies active in mineral exploration in Nova Scotia.

Major Company	1983	1984	1985	1985 Office Location
Billiton Canada Limited	x	x	-	
BP Resources Canada Limited (Selco Division)	x	x	x	Halifax
Canada Cement Lafarge Limited	-	x	x	Brookfield
Canadian Offshore Resources Explorations Limited (through SCOMINEX)	-	x	x	
Conwest Exploration Company Limited	-	-	-	
Dome Exploration (Canada) Limited	-	-	-	
Durham Resources Incorporated	-	x	x	
Eldorado Resources Limited (ground alienation)	-	-	-	
Esso Minerals Canada	x	x	x	Halifax
Getty Minerals Company Limited	-	-	-	
Goldfields Mining Corporation	x	-	-	
Granges Exploration Limited	x	x	x	Sackville
Husky Oil Operations Limited (through SCOMINEX)	-	x	x	
Inco Limited	-	x	x	Halifax
Kennco Explorations (Canada) Limited (through SCOMINEX)	-	x	x	
Kerr Addison Mines Limited	-	-	x	
Kidd Creek Mines Limited	x	x	x	Windsor
Lacana Mining Corporation	x	x	-	New Glasgow
Noranda Exploration Company Limited	x	x	x	
Novacorp Engineering Services Limited	x	x	x	Halifax
Petro-Canada Resources Incorporated	-	-	-	
Rio Algom Limited	x	x	x	East Kemptville
Rio Algom Exploration Incorporated	x	x	-	
Saarberg Interplan Canada Limited (ground alienation)	-	-	-	
Shell Canada Resources Limited (ground alienation)	-	-	-	
Sullivan Mines Incorporated	x	-	-	
Sulpetro Minerals Limited	-	-	-	
Suncor Incorporated	x	x	x	New Glasgow
U.S. Borax & Chemical Corporation	x	x	x	Halifax
Westmin Resources Limited	x	x	-	

x indicates field work performed
- indicates inactive

Table 3. Junior and private exploration companies operating in Nova Scotia.

Junior or private exploration company	1983	1984	1985	1985 Office Location
Acadian Gold Mines Limited	x	-	x	
Acadia Mineral Ventures Limited	x	x	x	Truro
Anglo-Canadian Mining Corporation	-	x	-	
**Athol Exploration Syndicate	-	x	-	
Bear Pass Resources Corporation	x	-	x	
Bigstone Minerals Limited	-	x	x	
Blockhouse Resources Limited	x	-	-	Halifax
Bluestack Resources Limited	x	x	-	
**Bras d'Or Syndicate	-	x	-	
Cape Breton Sulphur and Lime Corporation	-			
Cobequid Resources Limited	-	-	x	Truro
Coxheath Gold Holdings Limited	x	x	x	Bedford
Cumbercoal Limited	-	-	x	Dartmouth
Cuvier Mines Incorporated	x	x	x	Truro
*Entrepreneurial Management Limited	x	x	-	Bedford
*French Road Explorations Limited	-	-	-	Bedford
Gold Brook Developments Limited	x	x	x	Margaree
Golden Caribou Explorations Incorporated	x	-	-	
Golden Shadow Resources	x	-	-	
Goldenville Explorations Limited	x	x	x	
*International Geochemical Associates Limited	x	-	-	Bedford
International Makaoo Limited	-	x	-	
Isaac's Harbour Gold Explorations Incorporated	x	x	-	
Jascan Resources Incorporated	-	-	x	
John A. Leslie and Associates Limited	x	x	x	Bedford
Kelrock Limited	x	x	x	Antigonish
Lake Mine Resources Incorporated	x	x	-	
*Louisbourg Property Holdings Limited	x	-	-	Bedford
Lynx-Canada Explorations Limited	-	x	-	
Megaflo Resources Limited	-	-	x	
*Meguma Gold Corporation Limited	-	x	x	Bedford
MER Resources Incorporated	-	-	x	Dartmouth
M.E.X. Explorations Limited	x	x	x	Truro
Mid-North Resources Limited	-	-	x	
Mono Gold Mines Incorporated	-	-	x	
Northumberland Mines Limited	x	-	x	
Oceanways Minerals Development Corporation	-	x	-	Dartmouth
Oldham Resources Limited	-	x	x	Dartmouth
Onitap Resources Incorporated	-	x	x	
Outland Resources Corporation	x	x	x	
Pan-East Resources Incorporated	x	-	x	
Scotsville Mineral Resources Limited	-	x	x	Scotsville
Seabright Resources Incorporated	x	x	x	Halifax
Tournigan Mining Explorations Limited	-	-	x	
Trafalgar Resource Investments Limited	x	-	-	
Victoria County Explorations Incorporated	-	x	x	
Victoria Resource Corporation	-	-	x	
W. Bruce Dunlop Limited NPL	x	x	x	
*Whiteburn Precious Metals Limited	x	-	-	Bedford

* now Coxheath Gold Holdings Limited

** now Jascan Resources Incorporated

x indicates field work performed

- indicates inactive

Total expenditures for all exploration activity in Nova Scotia in 1985 are estimated to be approximately $8 million.

MINERAL EXPLORATION ACTIVITY IN 1985

Approximately 200 licence holders held claims during 1985. At the end of the year more than 33,300 claims in all categories were in good standing, of which more than 21,900 were first year claims granted under new general exploration licences (Table 1).

During the year, 729 new general exploration licences were issued and 253 general exploration licences were renewed. Thirty-seven development licences covering 1213 claims, and 13 special licences for coal, salt and potash and base metals covering 4659 claims were issued, renewed or pending during 1985. The numbers are all approximate as an additional 50 general exploration licences covering 1289 claims remained pending at the end of the year.

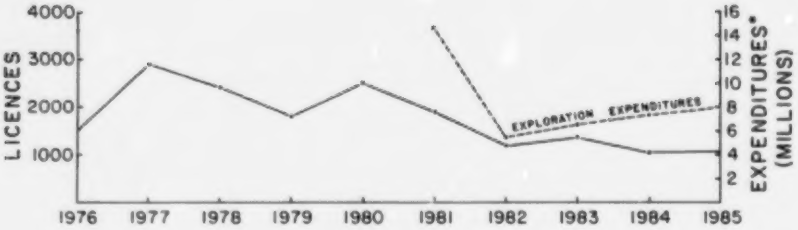
The combined total of 33,364 claims is equivalent to about 2085 square miles (5 400 sq kms) or approximately 10 per cent of the total area of the Province (this comparison makes no allowance for some submarine and some overlapping claims).

At the end of 1985 additional areas totalling more than 780 square miles (2000 sq km), equivalent to approximately 12,500 claims, remained alienated from any exploration under the uranium moratorium.

A sharp drop in exploration activities was recorded for the Province in 1982 following a period of record expenditure levels during 1980-81. Expenditure levels dropped from $14.6 million in 1981 to $5.5 million in 1982 followed by a gradual increase to an estimated $8.0 million in 1985 (Table 1). A number of factors contributed to the lower expenditure levels in 1982 including a sharp drop in the price of gold, the moratorium on uranium exploration and a general economic recession which affected exploration levels for other commodities including potash and base metals.

Figure 1 outlines the general exploration levels for the period 1976-85 on a yearly basis with a solid line representing the total number of exploration licences issued and the dashed line representing total exploration expenditures. The sharp decline in exploration expenditures in 1982 coincided with a 50 per cent decrease in the number of licences issued over the same period. This was partially due to the removal of uranium licences following the moratorium on uranium exploration.

In general, the level of activity has remained fairly steady since the drop in 1982 with a gradual increase in yearly expenditure levels supported primarily by exploration for gold, tin, tungsten and coal. It is expected that these levels will be sustained at least in the short term as the companies currently operating in the Province are continuing a number of significant exploration programs.



*(1) All commodities excluding petroleum.
(2) Statistics not available for 1976-80.

Figure 1. Annual number of exploration licenses issued and levels of exploration expenditures.

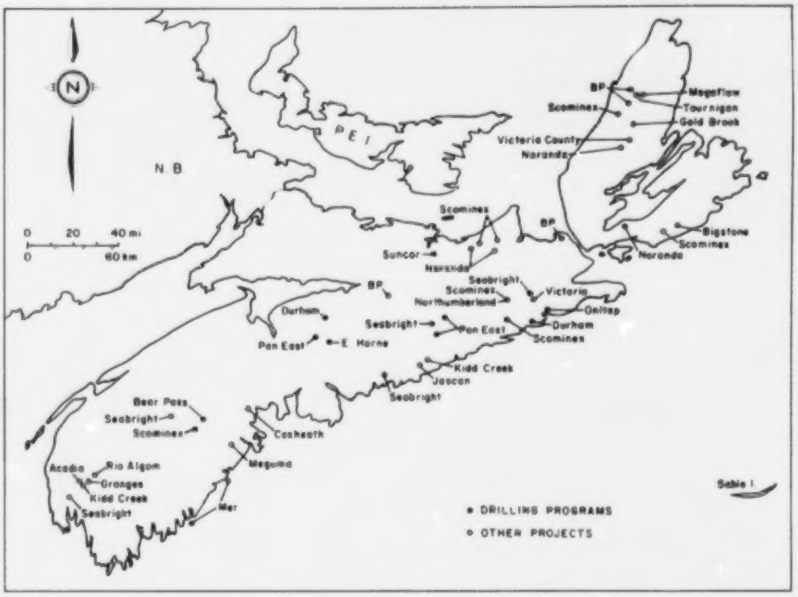
MINING EXPLORATION

GOLD

Exploration in the historic gold districts of mainland Nova Scotia continued to dominate the search for precious metals in the Province during 1985. A moderate increase in the level of gold exploration was recorded in 1985 over 1984 with several large-scale projects underway at the end of the year. Most of the exploration for gold is currently being carried out by the junior companies although interest from the major companies has been increasing (Fig. 2). The sustained interest in developing economic gold reserves in the Province suggests a continuation of the current level of activity into 1986.

Exploration was concentrated primarily on the gold-bearing quartz veins of the Cambro-Ordovician metasedimentary sequence of the Meguma Group. The gold occurs in stratiform quartz veins (saddle veins) and cross-cutting fault structures (fissure veins) near the axes of anticlinal limbs in the regionally folded Meguma metasedimentary rocks. The gold is free-milling and locally concentrated in discontinuous 'leads' and in roll structures with associated arsenopyrite and other minor sulphide mineralization. Most of the production in the historic gold districts took place during the period 1860-1915 with the largest production (210,150 oz.) recorded from the Goldenville property in Guysborough County.

A number of continuing exploration programs were carried out by the junior companies during 1985 with much of the activity taking place in Halifax and Guysborough Counties where the majority of the historic gold properties are located. Exploration programs included detailed geochemical and geophysical surveys, geological mapping, trenching and diamond-drilling.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0 20 40 mi
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BP
Magaflow
Scominex
Tournigan
Gold Brook
Victoria County
Noranda
Scominex
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Bigstone
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Seabright
Scominex
Victoria
Northumberland
BP
Onitap
Durham
Seabright
Pan East
Durham
Scominex
Pan East
E. Horne
Kidd Creek
Joscan
Seabright
Bear Pass
Seabright
Scominex
Cosheath
Acadia
Rio Algom
Granges
Kidd Creek
Seabright
Meguma
Mer
Sable I.
● DRILLING PROGRAMS
○ OTHER PROJECTS

Figure 2. Location of major exploration programs in Nova Scotia 1985.

Seabright Resources Incorporated continued a large-scale exploration program on the Forest Hill property in Guysborough County consisting of geological mapping, geochemical surveys, extensive trenching and diamond-drilling. The company announced a significant gold discovery on the property earlier in the year and are now proceeding with the collaring of an exploration shaft to carry out underground testing of the deposit. The company is currently drilling two additional properties in an option agreement with Acadia Mineral Ventures Limited, including the Lake Catcha gold property just east of Halifax and the Beaver Dam gold property twenty kilometres northwest of Sheet Harbour. Seabright is also continuing an evaluation of gold reclamation from tailings in several of the historic gold districts throughout mainland Nova Scotia. Additional surface exploration was carried out by the company on the Westfield gold property in Queens County.

Pan East Resources Incorporated resumed work on several gold properties, carrying out geophysical surveys and an extensive drilling program on the Fifteen Mile Stream property thirty kilometres north of Sheet Harbour in Halifax County, and two small drilling programs at Killag Mines, Halifax County and Mount Uniacke, Hants County.

SCOMINEX (Scotian Mineral Exploration Venture), under an option agreement with Northumberland Mines Limited, carried out additional drilling on the Goldenville and Cochrane Hill gold properties owned by the latter company near Sherbrooke, Guysborough County. A detailed evaluation of these properties is currently underway. A small drilling program was also carried out by SCOMINEX on the Molega gold property in Queens County. The SCOMINEX group carried out regional reconnaissance surveys for gold and base metals in the Antigonish Highlands, the Cape Breton Highlands and in the Stirling belt in southeastern Cape Breton Island.

Other small drilling programs were undertaken by Onitap Resources Incorporated at Isaacs Harbour in the vicinity of the Boston-Richardson mine property at Goldboro, Guysborough County, by Acadian Gold Mines Limited at Beaver Dam, Halifax County and by Durham Resources Incorporated (Toronto) at Wine Harbour southeast of Sherbrooke, Guysborough County. BP Resources Canada Limited completed a small drilling program for gold and base metals near Cheticamp, Inverness County as well as a detailed surface exploration program consisting of geological mapping, prospecting and geochemical sampling. A drilling program was also started at the end of December by Bear Pass Resources Corporation at Pleasant River Barrens, Lunenburg County, west of Bridgewater.

MER Resources Incorporated carried out a detailed exploration program for placer gold deposits along the Atlantic coast between Country Harbour in Guysborough County and Port Joli in Queens County. Work consisted of detailed sampling of beach sands and an extensive offshore drilling program.

Underground exploration was continued by Victoria County Explorations Incorporated on the Second Gold Brook property at Middle River, Victoria County (optioned from Gold Brook Developments Limited). An exploration adit was completed in early February to sample known gold-bearing zones on the property. E. Horne continued underground bulk sampling on the Free Claim zone at Renfrew, Hants County with plans to mill the samples on site. Meguma Gold Corporation initiated an underground examination of some of the old workings at the Leipsigate gold property in Lunenburg County. Work was suspended shortly after initial de-watering of one of the shafts.

Surface exploration programs for gold were carried out by several companies in the Meguma Group sedimentary rocks of mainland Nova Scotia. Jascan Resources Incorporated conducted a detailed surface examination of the Gold Lake (Scraggy Lake) property near the northern extremity of Lake Charlotte, consisting of geochemical and geophysical surveys and trenching. Coxheath Gold Holdings Limited carried out soil geochemistry and geophysics on the Gold River property in Lunenburg County, and Victoria Resource Corporation conducted geophysical surveys and a till sampling program and trenching on their Mill Brook property near Forest Hill, Guysborough County. Mono Gold Mines Incorporated entered a joint venture on this property with Victoria in December.

Attention continues to be focused on the gold potential of the volcano-sedimentary rocks of the Cape Breton Highlands in Inverness County with several companies conducting detailed surface exploration programs. Gold Brook Developments continued several projects for gold and base metals in the Middle River-Cheticamp area. Megaflo Resources Limited recently completed an overburden drilling program on a property optioned from Gold Brook Developments Limited in the Faribault Brook area east of Cheticamp. Tournigan Mining Explorations Limited also completed a small program of geochemical sampling and geophysics on a property in the Faribault Brook area.

Noranda Exploration Company Limited carried out regional reconnaissance surveys for gold and base metals in the Antigonish Highlands, the Cape Breton Highlands and the Sporting Mountian area in south Cape Breton Island.

In addition to the above exploration programs, several minor projects were carried out by various companies and individuals throughout the Province.

BASE METALS

Exploration for base metals was confined primarily to tin and tungsten in the Devono-Carboniferous intrusives of the South Mountain Batholith and the Musquodoboit Batholith. The level of activity for tin and tungsten exploration dropped slightly in 1985 from the moderate levels recorded in 1984. Most exploration for these metals was done primarily in the East Kemptville area by the major companies. Depending on the future strength of tin prices, a moderate level of interest in tin and tungsten exploration is expected to carry into 1986.

Exploration for tin and tungsten has concentrated on greisen-hosted tin mineralization in specialized granites and granitic differentiates that intrude the Cambro-Ordovician sedimentary rocks of the Meguma Group. Following the discovery of the East Kemptville tin deposit by Shell Canada Resources Limited in 1980, several companies have continued significant exploration programs in southwestern mainland Nova Scotia.

Rio Algom Limited continues to retain a significant ground position in the East Kemptville area with ongoing exploration projects being done in conjunction with the mining and development program of the East Kemptville tin deposit. Granges Exploration Limited initiated an exploration program for tin and tungsten, which included geological mapping, geophysical surveys and till sampling, approximately fifteen kilometres southwest of the East Kemptville deposit. A diamond-drilling program consisting of three holes was completed late in 1985.

Kidd Creek Mines Limited continued a detailed exploration program for tin and tungsten, consisting of geological mapping, detailed till sampling and trenching, in the Tangier Grand Lake area in Halifax County. The company also carried out additional work, consisting of geological mapping, geochemical surveys and geophysics on properties in the Kempt-Snare Lake area southwest of the East Kemptville tin deposit. Acadia Mineral Ventures Limited continued work on several projects in the Sloan Lake area, and Seabright Resources Incorporated initiated an exploration program for tin and tungsten in the Tusket area just northeast of Yarmouth.

Exploration for copper, lead and zinc continued at significantly reduced levels as compared with previous years with a steady decline recorded since 1981. The level of activity dropped moderately in 1985 from 1984 and with the continuation of depressed prices for these metals few companies were actively engaged in this sector of base metal exploration.

Bigstone Minerals Limited carried out additional geophysical surveys on the Stirling property in Richmond County as part of a continuing evaluation of the exploration potential in the immediate vicinity of the mine site. BP Resources Canada Limited continued projects in the Havre Boucher area, Antigonish County and the Stewiacke River valley area, Colchester County consisting of geological mapping and geochemical surveys. Acadia Mineral Ventures Limited also continued work in the Bridgeville area, Pictou County.

As already mentioned, the Scotian Mineral Exploration Venture group (SCOMINEX) and Noranda Exploration Company Limited carried out regional reconnaissance surveys for gold and base metals in the highland areas of eastern mainland Nova Scotia and Cape Breton Island.

A detailed surface exploration program for antimony was carried out by Durham Resources Incorporated (New Brunswick) at West Gore, Hants County. The Meguma Group hosted antimony/gold prospect was discovered in 1883 and underwent some mining and development near the turn of the century. The company carried out detailed geochemical sampling and geophysical surveys earlier in the year followed by a large diamond-drilling program consisting of 19 holes completed in mid December.

COAL

Suncor Incorporated continued an extensive exploration program for coal in the Stellarton-New Glasgow area of the Pictou coalfield during 1985. The work consisted primarily of diamond-drilling and downhole geophysics with a total of twenty holes completed in the current phase of the program.

The Nova Scotia Department of Mines and Energy continued an assessment of the exploration potential for coal in other areas of the Province with small drilling projects being carried out at Maple Brook, Inverness County and at Springhill, Cumberland County. A federally sponsored program of seismic studies was also carried out at Port Hood, Inverness County and in the Springhill area.

Athol Exploration Syndicate carried out under special licence a preliminary evaluation of the Springhill coalfield consisting of an analysis of the exploration potential for additional mineable coal reserves in the area and an assessment of the market potential for future mine development.

BARITE

Exploration levels for barite remained low through 1985 with little direct work apart from continued interest by individuals. Gerald Logan carried out prospecting and detailed trenching on a barite property at Middle Stewiacke, Colchester County and John Leslie conducted geochemical and geophysical surveys for barite in the Tennycape area, Hants County.

LIMESTONE

Canada Cement Lafarge Limited carried out a small diamond-drilling program on their property at Penny Mountain near Truro, Colchester County with a total of six holes completed as part of a continuing evaluation of the Penny Mountain limestone deposit.

SILICA

Scotsville Mineral Resources Limited carried out the first phase of a detailed evaluation of the Chegoggin silica deposits north of Yarmouth, Yarmouth County.

MINING DEVELOPMENT

GOLD

Seabright Resources Incorporated are nearing the development phase of the recent discovery of significant new gold reserves at their Forest Hill property in Guysborough County. The company is currently preparing for a detailed underground exploration program, and recently announced the awarding of a $3 million contract to Cementation Company (Canada) Limited for the construction of an 850-foot shaft, which will facilitate an underground evaluation of the property, preparatory to future development work.

BASE METALS

Development work on the East Kemptville tin deposit owned and operated by Rio Algom Limited has continued on schedule and initial production from the open pit mine started in mid October. The mine is expected to operate at 9 000^{+} metric tonnes per day at full capacity, with an annual output of approximately 3.3 million tonnes of ore. Mineable reserves are estimated at 56 million tonnes grading 0.16 per cent tin, with copper and zinc to be produced as by-products.

COAL

The Cape Breton Development Corporation continued development work on several projects in the Sydney coal basin during 1985. Development work was carried out on the Phalen Mine at New Waterford (tunnelling on main access slopes on the Phalen seam), the Donkin Mine at Donkin (driving a second access tunnel on the Harbour seam) and continuing underground feasibility studies of the No. 1B colliery at Glace Bay (Phalen seam).

Suncor Incorporated is also continuing feasibility studies on the potential for a mining development program to be carried out for coal at New Glasgow, Pictou County.

Pioneer Coal Company continued development work on their coal operations at Westville, Pictou County. The company initiated a development program to extend their current production to a new pit with a detailed drilling program.

INDUSTRIAL MINERALS*

J. H. Fowler

INTRODUCTION

As part of the Canada-Nova Scotia Mineral Development Agreement the Nova Scotia Department of Mines and Energy, and Energy, Mines and Resources Canada initiated several industrial mineral programs designed to stimulate mineral development in Nova Scotia. These programs include commodity market studies, mineral technology programs, and resource evaluation and documentation projects. Due to similar mineral development agreements involving two other Atlantic Provinces (Canada - New Brunswick and Canada - Newfoundland) the market studies are regional in scope.

MINERAL DEVELOPMENT AGREEMENT PROGRAMS

RESOURCES STUDIES - NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

1. Building Stone

Mr. Gordon Dickie was hired on September 3, 1985, to begin a five year study on building stone resources of Nova Scotia (Dickie, this volume).

2. Gypsum and Anhydrite Deposits of Nova Scotia

On June 17, 1985, Mr. Gordon Adams began a project to produce a report with maps on gypsum and anhydrite deposits in Nova Scotia, and to examine and promote additional utilization of these resources (Adams, this volume).

3. Aggregate Resources of Cape Breton

Two-colour, granular aggregate resource maps of Cape Breton Island have been published and are now available from the Nova Scotia Department of Mines and Energy library (Maps 85-3, 85-4, 85-5 and 85-6). Three maps locate and describe the deposits, and the fourth map identifies pits and quarries throughout Cape Breton Island.

MARKET STUDIES - NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

1. Current Market Economics of the Strontium Minerals

This study was completed by Metals Economics Group of Halifax, Nova Scotia and Boulder, Colorado and is available as Open File Report 648.

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* Funded by Nova Scotia Department of Mines and Energy, and Mineral Policy Sector and Canmet of Energy, Mines and Resources Canada under the Canada - Nova Scotia Mineral Development Agreement

2. The Gypsum Industry in Nova Scotia, Present Status and Future Prospects

This study has been prepared for the Nova Scota Department of Mines and Energy by the Centre of Resource Studies, Queens University, Kingston, Ontario and is available as Open File Report 752.

MARKET STUDIES - MINERAL POLICY SECTOR, ENERGY, MINES AND RESOURCES CANADA

The following market studies are nearing completion through contracts awarded by the Department of Supply and Services Canada. All reports when completed will become public documents.

1. Market Analysis for Nova Scotia, New Brunswick and Newfoundland Dimension Stone

This study examines markets for building stone within reach of Nova Scotia, New Brunswick and Newfoundland. The contract was awarded to The DPA Group Incorporated.

2. Aggregate Materials Accessible from Nova Scotia and New Brunswick

This study identifies markets for aggregates beyond the geographical boundaries of New Brunswick and Nova Scotia. The contract was awarded to ADI Limited, Fredericton, New Brunswick.

3. An Industry Study of Industrial Minerals Used in Oil and Gas Exploration on the Eastern Canadian Offshore

The study identifies the various minerals and quantities of each of the industrial minerals used in offshore drilling operations. The contract for this study was awarded to Jacques, Whitford and Associates Limited. Provincial participation includes Newfoundland, Nova Scotia and New Brunswick.

4. Silica and Silica Sands Accessible from Nova Scotia and New Brunswick

The study identifies markets and specifications for silica and silica sand outside the Province but within market range. The contact has been awarded to ADI Limited, Fredericton, New Brunswick.

MINERAL TECHNOLOGY STUDIES - CANMET, ENERGY, MINES AND RESOURCES CANADA

These studies are contracts awarded by Supply and Services Canada and will become public documents upon completion.

1. Development of Engineering Data on Nova Scotia Fly Ash

This study is expected to provide comprehensive engineering data to identify more extensive uses of fly ash in the concrete industry. The contract was awarded to L. E. Shaw Limited.

2. Nova Scotia Silica Study

This detailed study on Nova Scotia silica deposits is expected to identify beneficiation and processing procedures that could upgrade the product thereby creating additional marketing opportunities. The contract was awarded to Fenco Shawinigan Engineering Limited.

3. Nova Scotia Barite Study: Deposits Development, Markets

This study on barite deposits in Nova Scotia is expected to identify required beneficiation procedures, market situations and the ability of Nova Scotia producers to gain entry into additional markets. The contract was awarded to Jacques, Whitford and Associates Limited.

GYPSUM ANHYDRITE PROJECT*

*G. C. **Adams***

The Gypsum Anhdrite Project was initiated in June 1985 through the Canada - Nova Scotia Mineral Development Agreement to develop an inventory of the gypsum and anhydrite resources of the Province. In addition to this primary objective, technical research has begun to investigate and stimulate alternate utilization of these resources and to extend technical communications between government and the Province's gypsum and anhydrite producers.

Thus far, a detailed technical compilation using Nova Scotia Department of Mines and Energy maps, reports and assessment files has been carried out and a partial compilation of information generated from the computerized drillhole database has been accomplished. Visits to all of the Province's gypsum and anhydrite production facilities have been made. In depth discussions have been held with company and government representatives who are involved in the production and(or) use of gypsum throughout North America. Information compiled by these endeavors has been used previously to promote this industry.

Solid markets, and increased production and consumption of gypsum over the past few years have heightened industry interest in Nova Scotia gypsum resources. Several major wallboard producers have made fact-finding visits to our offices during the past six months and have been given encouragement and assistance in the procurement of information related to the feasibility of establishing a wallboard plant in Nova Scotia.

In the search for alternate uses of gypsum and anhydrite, agriculture was the first subject investigated. After much research and discussion with producers and agricultural officials of the Maritime Provinces, enough favourable data was generated to encourage a local company to begin production of an agricultural gypsum product in early 1986. Further research and discussions should lead to additional developments in this area within 1986.

Studies into the increased use of gypsum and anhydrite in the construction, mining, manufacturing (fillers) and agricultural industries are ongoing.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

BUILDING STONE PROJECT*

G. B. *Dickie*

PROGRAM OBJECTIVES

The building stone project was initiated in September 1985 by the Mineral Development Division of the Nova Scotia Department of Mines and Energy and is jointly funded under the Canada - Nova Scotia Mineral Development Agreement. It is a five year program and the primary goals are:

- to identify and evaluate the building stone resources of Nova Scotia, and
- to prepare promotional material on stone resources of Nova Scotia so as to attract and encourage private sector development of these resources.

The project will be carried out in two phases:

- Phase I consists ot mapping and sampling all old building and monumental stone quarries in Nova Scotia and will include sandstone, granite and marble rock types. The best areas will be selectively diamond-drilled to test continuity and bed thickness. Some trenching and stripping may be undertaken during this phase. Phase I will also include a cataloguing of old stone buildings throughout the Province and matching of the stone in these buildings to the quarry source. A preliminary report documenting this phase should be completed by March 1987.
- Phase 2 of the project will concentrate on developing detailed information on new quarry sites in Nova Scotia. Particular attention will be given to sandstones and granites best suitable for monumental and building cladding purposes. Promotional material on Nova Scotia stone will be prepared at the same time. A final comprehensive report on building and monumental stones of Nova Scotia will be completed in 1989.

INDUSTRY

The Building Stone project will be carried out in co-operation with the Nova Scotia stone industry. Initial contact has been made with several producers to discuss their stone requirements and to outline the details of the project. Contact has also been made with restoration companies working in the Halifax area. Due to the exacting nature of restoration work, their requirements for stone are site and quality specific.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

HISTORICAL NOTES

Stone has been used for building construction in Nova Scotia since the establishment of the first settlements in the late 17th and 18th centuries. The stone used either landed as ships ballast or was obtained from local sources. Production of domestic dimension stone began in the early 1800s in the Wallace Bridge area of Cumberland County, and in the Pictou area of Pictou County. Good quality sandstone was produced from both areas and used in the construction of buildings in the nearby communities and public buildings in Halifax. Province House, parts of the Court House and Government House were constructed of Wallace stone in 1817, 1860 and 1807, respectively.

During the mid to late 1800s as many as 75 sandstone quarries operated in Nova Scotia. Many produced only basement course stone for local buildings. However the Wallace quarries produced stone for domestic consumption and for a flourishing export trade to central Canada and the eastern seaboard of the United States. A small quantity of Wallace stone was shipped as far west as California.

In the recent past, Wallace stone has been used in conjunction with Sackville red stone in the construction of the library and other buildings at Mount Allison University in Sackville, New Brunswick.

Nova Scotia granite has been quarried and utilized for foundation courses, monuments, and curling and dimension stones. As early as the mid-1700s, the old Kings/Queens quarries on the Northwest Arm and the quarries at Terence Bay provided much of the granite used in the Halifax area. The front elevation of Saint Marys Basilica and the Merrill Lynch Building were constructed of local granite. Granite quarries operated in Shelburne, Nictaux and West Erinville, producing dimension stone and(or) monument stone.

At the present time, stone production in Nova Scotia primarily involves granitic rocks for monumental purposes. Quarries operate at Nictaux and West Erinville. A small amount of sandstone is quarried at Wallace for restoration purposes.

In recent years many old stone buildings in Halifax and elsewhere in the Province have been cleaned and restored. The exterior cleaning of Province House is perhaps the most visible project. During the next two to three years damaged stone will be replaced and the building restored to its original elegance. The old Dominion building on Hollis Street will be opened in 1987 as the Art Gallery of Nova Scotia. Extensive stone replacement is required to restore the exterior of the building to the original condition.

1985 FIELD PROGRAM

SANDSTONES

The Wallace quarries are renowned for the olive sandstones used in the construction of many Nova Scotia buildings. However, other lesser known quarries also raised stone for local buildings.

A field program was initiated in early September 1985 and was designed to locate, map and sample all old sandstone quarries in northern Nova Scotia (Fig. 1) and to locate the quarry source for many old stone buildings in centres such as Halifax, Truro, New Glasgow, Amherst and Sydney. Approximately 75 old quarries were visited. The majority are caved in, overgrown or simply eroded from river banks. Ten quarries were located which produced significant quantities of stone for construction and monument purposes (Table 1). Five of these sites are recommended for diamond-drilling in early 1986. Comprehensive quality determinations will be completed in early 1986 on selected stone samples to test characteristics such as compressive strength, chemical composition, resistance to acid rain and oxidizing effects of the atmosphere, and resistance to spalling in freeze-thaw cycles.

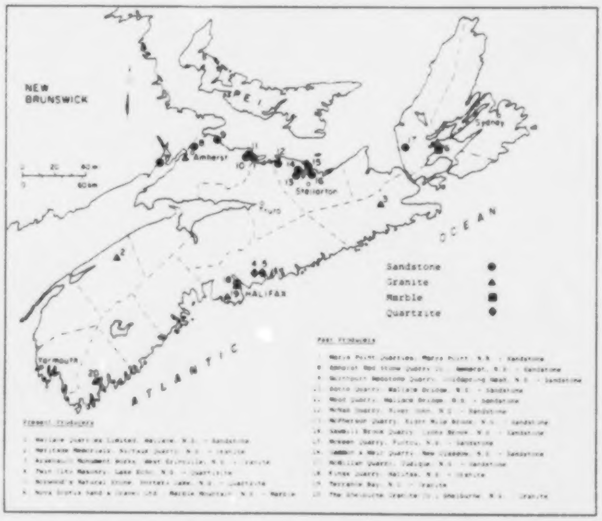
NEW BRUNSWICK
P.E.I.
Amherst
Stellarton
Truro
Sydney
HALIFAX
Yarmouth
OCEAN
ATLANTIC
Sandstone ●
Granite ▲
Marble ■
Quartzite ◆
Past Producers
Present Producers
Wallace Quarries Limited, Wallace, N.S. - Sandstone

Figure 1. Building and monumental quarries of Nova Scotia - past and present.

The sandstones of northern Nova Scotia, which have been quarried for dimension stone, may be divided into two broad categories and ages (Fig. 2). The red sandstone from Amherst, Northport and River John are from the Pennsylvanian, Westphalian C-D Pictou lower to middle redbeds (Ryan, 1985). The olive, buff and grey sandstones of Wallace, Eight Mile Brook, Sawmill Brook, and the McKeen quarry are from the late Namurian Boss Point Formation of the Riversdale Group (Ryan, ibid.). The Boss Point Formation is predominantly sand deposited in moderate to low sinuosity meandering, sand-dominated streams. Ryan states the "Pictou grey beds exhibit ... fining upward sequences of conglomerate to sandstone ... attributed to deposition in low sinuousity streams. The conglomerates constitute channel lags and the sandstones (arkoses), channel fill due to

Table 1. Large past-producing dimension stone quarries in Nova Scotia.

QUARRY NAME	BUILDING OR OTHER USE
Amherst	Bank of Nova Scotia, Truro and Amherst
Northport	Customs House, Halifax (demolished)
Wallace	federal and provincial buildings, Halifax
Batte	Province House, Halifax
River John	minor amounts shipped to Toronto
McPherson	monuments
Sawmill Brook	Taylor House, Lyons Brook, Pictou County
McKeen	parts of Town Office, New Glasgow
Gammon & Weir	local building stone but mostly crushed rock
McMillan	local foundation blocks

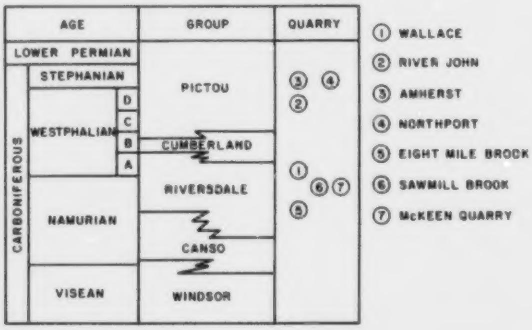
AGE
GROUP
QUARRY
LOWER PERMIAN
CARBONIFEROUS
STEPHANIAN
WESTPHALIAN
D
C
B
A
NAMURIAN
VISEAN
PICTOU
CUMBERLAND
RIVERSDALE
CANSO
WINDSOR
① WALLACE
② RIVER JOHN
③ AMHERST
④ NORTHPORT
⑤ EIGHT MILE BROOK
⑥ SAWMILL BROOK
⑦ McKEEN QUARRY

Figure 2. Approximate position of significant sandstone quarries of Nova Scotia in the Carboniferous stratigraphic succession.

the migration of dunes, which resulted in trough cross stratification". He further states that the depositional environment of the Pictou lower redbeds is very similar to the Pictou grey beds.

GRANITES

Present day production of Nova Scotia granite is restricted to monumental stone. Quarries operate seasonally at Nictaux and West Erinville. Black and red granites are imported as no local quantifiable source has been identified. Preliminary investigations for suitable red granites in the Cobequids and Cape Breton Highlands have not delineated suitable monument stone. Granites will be studied in detail during the 1986 field season.

ACKNOWLEDGMENTS

The author gratefully acknowledges the invaluable assistance of L. W. Batten of the Southwestern Stone Cleaning and Restoration Company Limited, and the insights he has offered during many conversations and field excursions into the complex field of stone masonry and restoration.

REFERENCE

Ryan, R. J.
1985: Upper Carboniferous strata of the Tatamagouche Syncline, Cumberland Basin, Nova Scotia; *in* Current Research, Part B, Geological Survey of Canada, Paper 85-1B, p. 481-490.

MINERAL INVENTORY

N. A. Lyttle

GEOSCAN ACTIVITIES

Indexing and on-line data entry into GEOSCAN, the national bibliographic database for geological information, continued throughout 1985 for Nova Scotia Department of Mines and Energy assessment reports, publications, open file reports and open file maps, and geoscience theses and journal literature. As of December 31, 1985, the database contained 8,076 Nova Scotia Department of Mines and Energy records consisting of: 3,753 assessment reports; 1,643 publications; 655 open file reports; 368 open file maps; 599 theses; and 1,058 journal literature references. *Report 85-2 Index to Assessment Reports 1984 (with Keyword Index)*, and *Report 85-3 Index to Publications, Open File Reports and Open File Maps for 1984 (with Keyword Index)* were released in May 1985. New five-year (1981-1985) indexes for assessment reports, and for publications, open file reports, open file maps and theses will be published in 1986.

GEOSCAN PETROLEUM EXPLORATION ASSESSMENT REPORTS PROJECT*
(M. J. Fraser-MacKinnon)

This project started in May 1984 and ended on March 31, 1985. Ninety-one onshore petroleum assessment reports and 270 offshore petroleum well reports, received by the Nova Scotia Department of Mines and Energy between 1968 and 1984, were organized, indexed and entered into GEOSCAN. Twenty-two of the 91 onshore reports are non-confidential, have been microfilmed, and are publically accessible in the Department libraries in Halifax and Stellarton. One hundred and nineteen of the 270 offshore reports are non-confidential and can be consulted in hard copy in the Petroleum Resources Section of the Department or obtained on microfiche from Canada Oil and Gas and Lands Administration (COGLA) in Ottawa.

GEOSCAN JOURNAL LITERATURE PROJECT*
(G. Frotten)

This project started in January 1984 and ended on March 31, 1985. A total of 1,398 journal literature references on the geoscience of Nova Scotia have been identified. Seven hundred and sixty references have been indexed and entered into GEOSCAN. In addition, a hard copy of each of the 760 indexed references has been obtained and is filed alphabetically by author in the Halifax library of the Department.

GEOSCAN RECORDS STANDARDIZATION PROJECT*
(D. Wilkinson)

Participating agencies have been converting and standardizing their GEOSCAN records to facilitate compatibility and searching of the database as part of the preparations involved in making GEOSCAN publically accessible through commercial vendors of on-line databases. The conversion and standardization of Nova Scotia GEOSCAN records started in January 1984 and as of December 31, 1985, 3,970 records had been processed. All the Nova Scotia Department of Mines and Energy records have now been converted, and only final proof-reading and editing of entered records need to be done to finalize this project.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

GEOSCAN THESES PROJECT*
(D. R. MacDonald, D. B. Hopper, D. Wilkinson)

A total of 111 B.Sc., M.Sc and Ph.D. geoscience theses produced between 1981 and 1985, and 47 pre-1981 theses on Nova Scotia have been identified, indexed, entered into GEOSCAN and microfilmed. To date, 593 geoscience theses have been entered into GEOSCAN and 528 of these can be consulted on microfiche in the Halifax library of the Department. Author and NTS indexes to the newly identified theses will be published in 1986 as part of the new five-year publications index. Indexes to pre-1981 theses were previously published in Report 81-6. *Open File Map 85-01 Nova Scotia Thesis Study Area Location Map* will also be published in 1986.

GEOSCAN DATA ENTRY PROJECT*
(J. Newman, B. Milburn)

This project started in January 1984. As of December 31, 1985, the following records had been entered on-line into the GEOSCAN database: 779 assessment reports; 176 open file reports; 361 open file maps; 260 publications; 240 theses; 536 journal literature references; and 3,970 converted records.

GEOSCAN MINING ENGINEERING REPORTS PROJECT*
(G. Protten)

This project, which started in April 1985, involves the identification, sorting, indexing and microfilming of technical reports received by the Mining Engineering Division from private industry over the past ten years. A total of 158 reports have been identified and indexed. The majority of these reports are concerned with feasibility and environmental impact studies on proposed coal and base metal mine development operations in Nova Scotia. Seventy-five of these reports are non-confidential and have been microfilmed. These open reports were released in the September 1985 open assessment reports list, and can be consulted on microfiche in the Halifax and Stellarton libraries of the Department.

GOLD BIBLIOGRAPHY
(J. Gillespie-Wood)

Compilation of information for the gold bibliography, to be entitled *Gold in Nova Scotia: a Bibliography of the Geology, and Exploration and Mining Histories from 1832 to 1985*, is well advanced and publication is expected in 1986. The bibliography will contain over 1,300 references, documenting 265 gold districts and occurrences. The bibliography will be organized into three parts: Part I will be an alphabetic author index; Part II will be an index by gold district, with each gold district being subdivided into an author index, an assessment reports index, and a map and cross-section index; Part III will contain the following cross reference lists: gold district/ NTS map/county, NTS map/gold district/county and county/gold district/NTS map.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

GOLD PAMPHLET*

(J. Bates)

In co-operation with the Public Awareness group, a pamphlet entitled *Gold in Nova Scotia* has been written and will be published in 1986. The pamphlet, which is written in a nontechnical manner, is intended for the general public and school students. The pamphlet contains information on the history of gold mining in Nova Scotia, the mining and extraction of gold, the occurrence and distribution of gold in Nova Scotia, the geology and origin of gold deposits in Nova Scotia, and present and future trends in gold exploration. A map of Nova Scotia illustrating the basic geology, and the location of gold districts and producers is included. In addition, the pamphlet contains production figures of the gold districts according to regions, an Information/Do-It-Yourself section, a listing of gold festivals and related events, a listing of related continuing education courses on introductory geology and prospecting, a listing of selected references and a glossary of geological terms.

MINERAL OCCURRENCES DATABASE PROJECT*

(G. DeMont, A. McIntyre, G. Protten)

Information from the metallic and industrial mineral occurrences data card files, compiled up to 1980, have been computerized to form two mineral occurrences databases. The metallic mineral occurrences database consists of information on 894 mineral occurrences, recorded in 27 data fields. The industrial mineral occurrences database consists of information on 1,042 mineral occurrences, recorded in 20 data fields.

The databases can be searched on individual data fields or any combination of data fields and the search results printed out at a computer terminal. In addition, map plots of mineral occurrence locations can be obtained at any requested scale. At present, the mineral occurrences databases are supported at the Maritime Resource Management Service (MRMS) in Amherst, where they can be accessed on a fee-for-service basis.

Open File Reports 599, 600 and 601 Metallic Mineral Occurrences Maps and Data Compilations, Open File Reports 606, 607 and 608 Industrial Mineral Occurrences Maps and Data Compilations were released in December 1984 and June 1985, respectively. Each of these reports consists of a 1:250 000 scale mineral occurrences location map plotted on a geological base, together with data tabulations on the mineral occurrences (compiled up to 1980) obtained from the mineral occurrences databases.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

DRILLHOLE DATABASE PROJECT*

(G. Demont, A. McIntyre, G. Protten)

As of September 30, 1985, all the open assessment reports up to the end of 1984 had been coded for the 31 data fields which constitute the drillhole database. This represents approximately 12,000 drillholes from 1,900 assessment reports.

The database can be searched on individual data fields or any combination of data fields and the search results printed out at a computer terminal. In addition, map plots of drillhole locations can be obtained at any requested scale. At present, the drillhole database is supported at the Maritime Resource Management Service (MRMS) in Amherst, where it can be accessed on a fee-for-service basis.

Assessment reports which became open during 1985 are presently being coded for drillhole data. When this coding is completed, an open file report will be published in 1986 that contains a listing of all drillholes from all open assessment reports with data tabulations from the drillholes database.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

GOLD INVENTORY PROJECT

C. K. Miller

The Gold Inventory Project is a comprehensive compilation and economic evaluation of the occurrence of gold, silver and platinum in Nova Scotia, providing a basis for the determination of the discovery potential of the Province for these precious metals.

A major component of the project is a literature review of the more than 2000 available related references. This aspect of the project is approximately 70 per cent completed. A bibliography of gold in Nova Scotia (Gillespie-Wood, in press) serves as the basic reference guide for the research.

Results of the research to date indicate that gold, silver and platinum are well represented in the three metallogenic domains (Graves and Zentilli, 1982) of the Province. Fifty precious metal occurrences, not included in the current metallic mineral occurrence database (Ponsford and Lyttle, 1984a, 1984b and 1984c), have been noted.

The rediscovery of forgotten documented occurrences of primary gold in rocks of Devono-Carboniferous age and younger at Smithfield, Colchester County, Copper Lake, Antigonish County, and near Lower Washabuck, Victoria County are of metallogenic significance to the Province. It may be determined that this mineralization is related to post-Carboniferous gold mineralization at Cape Spencer, near Saint John, New Brunswick (Ruitenberg and McCutcheon, 1985).

At Copper Lake, iron-carbonate veins mineralized with chalcopyrite, pyrite and pyrrhotite have assayed gold values up to 0.12 ounce/ton (Piers, 1909). The veins cut undifferentiated clastic rocks of Devono-Carboniferous age. This and numerous other iron deposits distributed along the Glooscap Fault system may be associated with hydrothermal activity along the fault zone. This environment is worthy of gold exploration.

At Smithfield, gold values as high as 0.85 ounce/ton were obtained from pyritic Pb-Zn samples (Murphy, 1926) taken from carbonate rocks of the basal Windsor Group.

At Crow Point, near Lower Washabuck, gold values as high as 0.95 ounce/ton were obtained in samples of cupriferous conglomerate of the Horton Group (How, 1868). The mineralization occurred in the conglomerate and at its contact with the overlying limestones of the Windsor Group (Hind, 1870; Gilpin, 1880). Rocks of the Horton Group and Grantmire Formation should be investigated for gold and silver potential.

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In addition to the literature review, selected occurrences or areas of interest like those noted above will be investigated to verify the presence of precious metals, and to describe the character of observed mineralization.

Two diamond-drill holes, SL 85-1 and SL 85-2, reaching depths of 335 and 320 metres respectively, were completed near Sinclar Lake, south of Goldenville, Guysborough County (11E/01A). The drillholes, which were drilled through a coincident magnetic high and VLF-EM conductor on the Wine Harbour anticline, penetrated metawackes of the Goldenville Formation, Meguma Group. Quartz veins mineralized with one to two per cent disseminated chalcopyrite, pyrite, arsenopyrite and galena with negligible amounts of gold are present in a quartz-veined fracture zone, situated in the axial zone of the fold. The cause of the magnetism has not been explained.

Nova Scotia has produced 1.16 million ounces of gold from 62 different districts. The Goldenville district, mined to a depth of 500 feet, accounted for over 200,000 ounces of gold or 18 per cent of the total for the Province.

Nova Scotia has produced about five million ounces of silver as a by-product from two former base metal mines at Walton, Hants County and Stirling, Richmond County.

No platinum has been produced in Nova Scotia, but its presence has been documented at the Moose River, Caribou and Fifteen Mile Stream gold districts in Halifax County, as well as the Faribault Brook area, east of Cheticamp, Inverness County.

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DRILL CORE LIBRARY

J. M. McMullin and J. D. Langille

The Nova Scotia Department of Mines and Energy (NSDME) maintains core storage facilities at four locations.

The main facility is in the Stellarton Industrial Park (Fig. 1) and consists of three buildings with a combined storage area of 2 100 square metres (22 600 ft^2) and a heated laboratory with an area of 93 square metres (1 000 ft^2). Total capacity is about 330 000 metres (1 083 000 ft) of drill core which is stored on approximately 1 700 pallets. These pallets can be moved to viewing areas as required by a propane-powered forklift truck.

At present, the three buildings are near full capacity and work has begun under the Canada - Nova Scotia Mineral Development Agreement (CNSMDA) to plan for the construction of an additional building and to reduce the volume of the core now in storage, by detailed evaluation and selective disposal. A project geologist and a mineral technician have been hired for the duration of the CNSMDA to carry out the latter process. Work to date under the MDA program has consisted of detailed evaluation of drill core obtained from drilling by Getty Mines Limited and Esso Minerals Canada in the Gays River area.

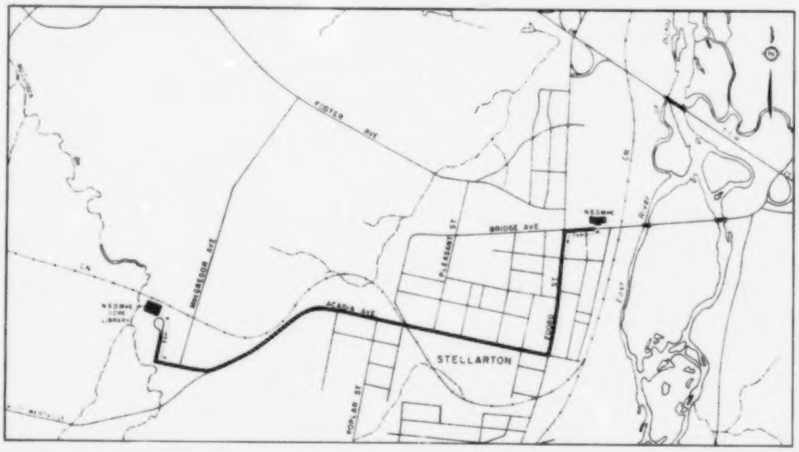

Figure 1. Location of drill core library, Stellarton.

NSDME Report 86-1

Core is also stored at the regional office of the Nova Scotia Department of Mines and Energy on Bridge Avenue in Stellarton, at a building in the Debert Industrial Park, Colchester County and at a building near Malagawatch, Inverness County.

Most core is non-confidential, although the reference assessment data has a confidentiality period of two years and limited sampling may be permitted with certain restrictions. Diamond saws and core splitters are available for sampling, and a binocular microscope and ultraviolet light are available for visitors' use.

None of the facilities are staffed on a regular full-time basis. Anyone wishing to examine core is advised to contact John McMullin, Jim Langille or Dennis Murphy at (902) 752-8429 at least one day in advance of visiting the core facility.

For the 12 month period ending October 1985, a total of approximately 67 000 metres (219 800 ft) of additional core (more than 903 holes) has been received at the Stellarton core library from 19 companies or organizations responsible for 50 separate projects operating over the last twenty years (Table 1).

The total contents of the four storage locations now is estimated at 352 513 metres (1 156 500 ft) from 4 265 holes drilled during the last 25 years (except core from one hole drilled in 1951). This total consists of 84 852 metres (278 357) ft) 800 holes drilled for the Department and 267 661 metres (878 143 ft) from 3 465 holes drilled by the mineral exploration industry and other organizations.

A preliminary detailed catalogue was prepared during the fall and is available for consultation in the Stellarton and Halifax offices.

The Nova Scotia Department of Mines and Energy welcomes donations of complete core sections although space limitations require that such donations be subject to selective acceptance.

Table 1. Drill Core Acquisitions at Nova Scotia Department of Mines and Energy Core Library: October 1, 1984 to October 17, 1985

Company or Group	Location of Drilling	Year of Drilling	No. of Holes	Total Metres
Aquitaine Company of Canada Limited	Coxheath Hills, Cape Breton County	1976	8	768
EMR-Earth Physics Branch	Wedgeport, Yarmouth County	1985	1	480
Esso Minerals Canada	Meadowbrook, Antigonish County	1979	6	190*
Esso Minerals Canada	Canfield Creek, Cumberland County	1980/82	35	2 695

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*subject to verification

Table 1: (continued)

Company or Group	Location of Drilling	Year of Drilling	No. of Holes	Total Metres
Esso Minerals Canada	Cumberland Basin, Pictou, Colchester and Cumberland Counties	1981/82	36*	4 950*
Getty Mines Limited	Cheticamp, Inverness County	1974/75	2	691
Golden Caribou Explorations Incorporated	Caribou, Halifax County	1983	4	164
Goldenville Explorations Limited	Goldenville, Guysborough County	1983/84	7	7 348*
Imperial Oil Limited/ Jorex Limited	Chaswood, Halifax County	1973	7	166
Imperial Oil Limited/ Jorex Limited	Coldstream, Colchester County	1973	7	312
Imperial Oil Limited/ Jorex Limited	Nine Mile River, Hants County	1973	7	325
Imperial Oil Limited/ Jorex Limited	Hopewell, Pictou County	1973	6	127
Imperial Oil Limited	Horne Settlement, Hants County	1973	4	445*
Imperial Oil Limited	Latties Brook, Hants County*	1973/74	4	165*
Imperial Oil Limited	Pomquet, Antigonish County; Captains Pond, Antigonish County	1973/74	*	2 050*
Imperial Oil Limited	Sylvan Valley, Antigonish County	1974	1	353
Imperial Oil Limited	Mt. Thom, Colchester County	1974	1	507
Imperial Oil Limited	Ohio, Antigonish County	1974/79	21	500*
Imperial Oil Limited	Addington Forks, Antigonish County	1974/75	1	230
Imperial Oil Limited	Limerock, Pictou County	1976	2	180

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*subject to verification

Table 1: (continued)

Company or Group	Location of Drilling	Year of Drilling	No. of Holes	Total Metres
Imperial Oil Limited	Smithfield, Colchester County	1977/79	9	800*
Imperial Oil Limited	Glenbervie, Colchester County	1977/78	11	590*
Imperial Oil Limited	Rutherford Brook, Colchester County	1978	2	207*
Imperial Oil Limited	Brookfield, Colchester County	1978	2	35
Imperial Oil Limited	Dalhousie East, Annapolis County	1978/79	59	2 663*
Isaac's Harbour Gold Explorations Incorporated	Goldboro, Guysborough County	1984	8	559
Lake Mine Resources Incorporated	Caribou, Halifax County	1983	3*	1 120*
Magcobar/Dresser	Walton Mine, Hants County	various	460*	15 300*
Mariner Mines Limited	Coxheath Hills, Cape Breton County	1965	22	3 150*
Noranda Exploration Company Limited	Kempt Road, Richmond County	1981	1	716*
Noranda Exploration Company Limited	Gillis Mountain, Cape Breton County	1982	2	179
Noranda Exploration Company Limited	Musquodoboit Harbour, Halifax County	1982	1	165
Nova Scotia Department of Mines and Energy	Clarksville-West Gore, Hants County	1984/85	1	568
Nova Scotia Department of Mines and Energy	Point Aconi, Cape Breton County	1985	5	104
Nova Scotia Department of Mines and Energy	River Road, Pictou County	1985	1	626
Nova Scotia Department of Mines and Energy	Big Tom Wallace Lake, Digby County	1985	1	1 434

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*subject to verification

Table 1: (continued)

Company or Group	Location of Drilling	Year of Drilling	No. of Holes	Total Metres
Nova Scotia Department of Mines and Energy	Sinclair Lake, Guysborough County	1985	2	641
Nova Scotia Department of Mines and Energy	Maple Brook, Inverness County	1985	2	445
Nova Scotia Department of Mines and Energy	Springhill, Cumberland County	1985	1	270
Pan East Resources Incorporated	Fifteen Mile Stream, Halifax County	1985	11	1 346
John Riddell	Oceanview, Cape Breton County	1981	2	162
Seabright Resources Incorporated	Forest Hill, Guysborough County	1982/83	13	2 146
Seabright Resources Incorporated	Mill Village, Queens County	1984	10	585
Seabright Resources Incorporated/M.E.X Explorations Limited	Westfield, Queens County	1985	5	644
Sherritt Gordon Mines Limited	Caribou, Halifax County	1981	12	2 237
Suncor Incorporated	New Glasgow, Pictou County	1984	13	6 925
U. S. Borax and Chemical Corporation	Dufferin Mine, Halifax County	1984	3	407
U. S. Borax and Chemical Corporation	Farmington, Cumberland County	1983	4	171
U. S. Steel (Essex Minerals)	Sporting Mountain (Oban), Richmond County	1969	12	132
TOTALS			903(+)	66 885 m* (219 440 ft)

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*subject to verification

MINERAL AND ENERGY LAND USE PLANNING PROJECT*

D. B. Hopper

INTRODUCTION

In June 1983, a new Planning Act for Nova Scotia was proclaimed by Cabinet. The Act enables the Province to prepare provincial land use policies whose intent shall be embodied within planning strategies at the municipal level. The Nova Scotia Department of Mines and Energy recognizes its obligations in forming provincial land use policies to provide responsible management and protection of the Province's mineral and energy resources.

Under the new Canada - Nova Scotia Mineral Development Agreement, the Department has initiated a land use planning project. One person is now co-ordinating necessary background research, supporting data and mapped information for the establishment of a provincial mineral land use policy.

GOALS AND OBJECTIVES

It is becoming increasingly apparent that the range of concern for the Nova Scotia Department of Mines and Energy, especially in the dissemination of information, must include the planning community and other land users. A major concern of mineral land use is the constant withdrawal of land from mining exploration and development by numerous agencies involved with land use planning. Currently, the practice of land use planning in Nova Scotia gives little or no consideration for mineral and energy resource potential. The land use planning project will make available, in a usable form, information on past, known and potential mineral wealth to other land users including: cities, townships, rural municipalities and counties, outdoor clubs and societies, and voluntary planning organizations. The overall goal of the project is to recognize the Department's role as steward over the Province's earth resources and to ensure their protection, conservation and proper management.

Five objectives have been identified to realize the goal:

1. To provide information about and general direction on the preservation and(or) utilization of mineral and energy resource lands in Nova Scotia;
2. To ensure that the Province's mineral and energy resources are available for exploration and development in the present and for the future;
3. To identify planning issues associated with preservation and(or)utilization of mineral and energy resource lands;

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

4. To encourage awareness and use of existing and potential mineral resource information by land use planners;

5. To provide regional maps showing mineral potential.

A PHASED APPROACH

The project will be carried out in three phases over a five year period. Each phase will produce supporting material and mapped information for a provincial mineral land use policy.

PHASE 1: INFORMATION BASE

A systematic collection of existing geoscientific and industry-related information is currently in progress. This will be organized according to the Province's twenty-four rural municipalities. As a result, the municipalities will benefit from a *Mineral and Energy Land Use Handbook Series*.

Each Handbook will have two main components: a set of mineral resource/land use (MRLU) maps assembled at a scale of 1:50 000, and organized sets of data and text providing further description to the mapped information. Each MRLU map may show: mineral, sand and gravel, and peatland occurrences; coal resources; areas of potential subsidence; mines pits and quarry locations; shaft and adit locations; drillhole locations and so on.

The second component to the Handbook includes: an annotated bibliography; mineral and energy exploration and development statistics; exploration and mining histories; past and present mine and quarry plans; case histories of land use conflicts arising from mineral and energy land use; a listing of contacts available within the Nova Scotia Department of Mines and Energy.

PHASE 2: MINERAL POTENTIAL MAPS

A natural progression from the MRLU map series is to use all systematically collected data from phase 1, and departmental files, publications and maps toward the assemblage of a mineral potential map series for Nova Scotia. An easily understood rating system will be developed to evaluate the mineral exploration and development potential of the Province's regions.

Criteria used to establish different levels of mineral potential will be based on regional geology, geology of known mineralized areas, results of previous exploration and mining activity, current concepts concerning origins of mineral deposits, and mineral economics and extraction technologies.

PHASE 3: A PROVINCIAL MINERAL LAND USE POLICY

With a comprehensive mineral and energy land use database in place, undergoing the necessary updating and revision, a provincial land use policy can be formulated.

The Department's primary concern is the provision of geoscientific information to encourage future development of the mineral and energy industry in Nova Scotia. However, this range of concern includes furnishing provincial and regional planners, and other land users with useful current geoscientific information. Indeed it is in the Province's best interest to encourage the dissemination and use of geoscientific resource information in the land use planning process.

CUMBERLAND BASIN PROJECT - A PROGRESS REPORT*

R. C. Boehner, R. J. Ryan and D. C. Carter

INTRODUCTION

The Cumberland Basin (Synclinorium) is the largest (3600 km^2) and deepest (7000 m+) Carboniferous structural basin in Nova Scotia (Fig. 1). It contains predominantly fine- and coarse-grained alluvial-fluvial continental clastics with major evaporitic-marine rocks. This complex succession of Tournaisian to Stephanian age was deposited to the north of the Cobequid Highlands subsequent to the Acadian Orogeny.

The area has a long history of coal and salt mining, as well as, building stone production. In addition, it contains numerous sediment-hosted metallic mineral occurrences or prospects (Cu-Pb-Zn-Ag-U), and industrial - nonmetallic mineral occurrences or prospects such as barite, celestite, salt, potash and limestone.

The principal goal of the project is to develop a comprehensive understanding of the stratigraphy, sedimentology, structure, economic geology and history of development of the area. This study will be fundamental in evaluating its mineral resource potential. To this end the major activities by the project staff include (1) basin geology and sedimentology (R. J. Ryan and Boehner, this volume); and (2) special emphasis on Windsor Group evaporite geology including a drilling program and mapping of the Pugwash Mine (Carter, this volume).

STRUCTURE

The Cumberland Basin (Synclinorium) has a prominent east-west trend parallel to the Cobequid Highlands (Fig. 1). It forms a western arm or extension of the larger Magdalen (Fundy) Basin of Wade et al. (1977) centred beneath the Gulf of St. Lawrence located to the northeast.

The intrabasin structure also reflects the east-west trend and has the general configuration of a synclinorium with two internal, en echelon, diapiric anticlinal structures termed the Claremont (Malagash) and Minudie Anticlines (Fig. 1). Within the intervening Wallace Syncline there are several isolated evaporite-cored diapiric structures. Major synclines include the Athol and Tatamagouche (locally doubly plunging) Synclines and the Dorchester Syncline that extend from the New Brunswick border to the north of the Minudie Anticline. The east-west folding is locally complicated by subparallel longitudinal faults and transverse faults with similar orientations to the Glooscap Fault - Minas Geofracture System. The nature of these major faults in the deep subsurface is not clear.

Field activities in 1985 were focused on the extension of mapping from the Tatamagouche Syncline area (Ryan, 1985) northward across the east

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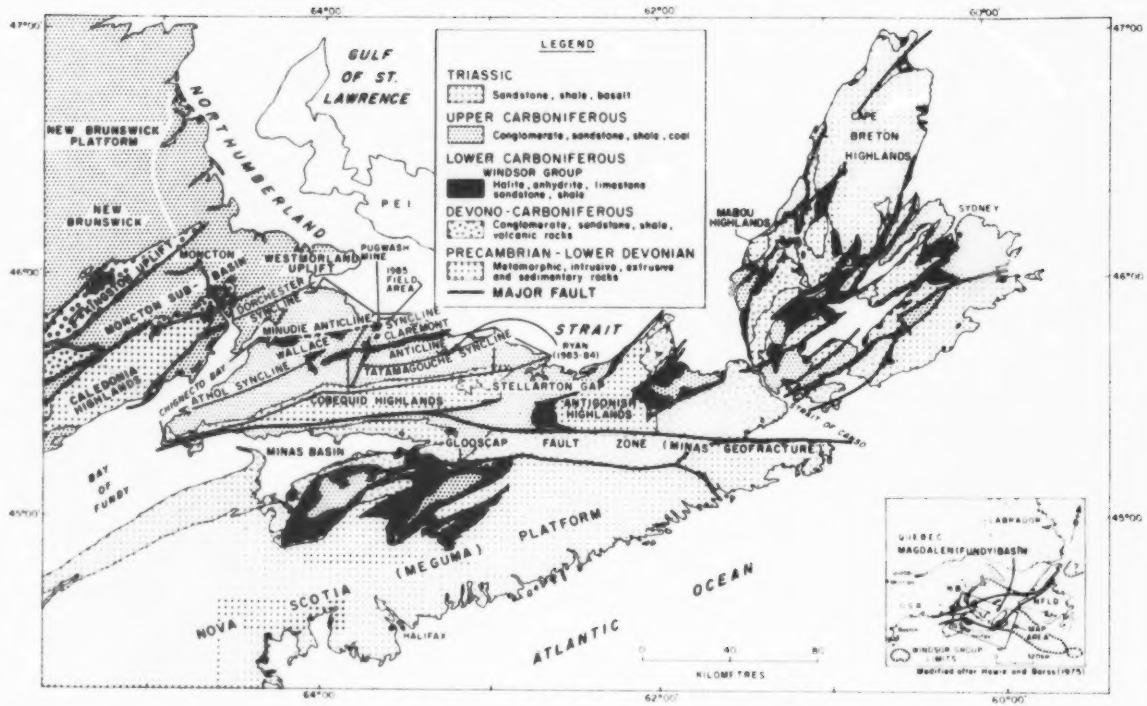
47°00'
64°00'
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LEGEND
TRIASSIC
Sandstone, shale, basalt
UPPER CARBONIFEROUS
Conglomerate, sandstone, shale, coal
LOWER CARBONIFEROUS
WINDSOR GROUP
Halite, anhydrite, limestone sandstone, shale
DEVONO-CARBONIFEROUS
Conglomerate, sandstone, shale, volcanic rocks
PRECAMBRIAN - LOWER DEVONIAN
Metamorphic, intrusive, extrusive and sedimentary rocks
MAJOR FAULT
GULF OF ST. LAWRENCE
NORTHUMBERLAND
STRAIT
NEW BRUNSWICK PLATFORM
NEW BRUNSWICK
PEI
KINGSTON UPLIFT
MONCTON SUB-BASIN
MONCTON
WESTMORLAND UPLIFT
PUGWASH MINE
1985 FIELD AREA
DORCHESTER SYNCLINE
MINUDIE ANTICLINE
SYNCLINE
CLAREMONT
ANTICLINE
WALLACE
TATAMAGOUCHE SYNCLINE
RYAN (1983-84)
CALEDONIA HIGHLANDS
CHIGNECTO BAY
ATHOL SYNCLINE
COBEQUID HIGHLANDS
STELLARTON GAP
ANTIGONISH HIGHLANDS
GLOOSCAP FAULT ZONE (MINAS GEOFRACTURE)
MINAS BASIN
BAY OF FUNDY
(MEGUMA) PLATFORM
NOVA SCOTIA
HALIFAX
ATLANTIC OCEAN
MABOU HIGHLANDS
CAPE BRETON HIGHLANDS
SYDNEY
STRAIT OF CANSO
0 40 80
KILOMETRES
LABRADOR
QUEBEC
MAGDALEN(FUNDY)BASIN
NB
USA
NFLD
NS
MAP AREA
WINDSOR GROUP LIMITS
Modified after Howie and Barss (1975)

Figure 1. Location map, Cumberland Basin project area and regional geological setting

part of the Claremont (Malagash) Anticline (Fig. 1). Preliminary results from this field activity and mapping in the Pugwash Mine are summarized in the two following papers of this volume.

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CUMBERLAND BASIN GEOLOGY*

R. J. Ryan and R. C. Boehner

INTRODUCTION AND STRATIGRAPHY

The Upper Carboniferous strata of the northeastern part of the Cumberland Basin comprise red and grey conglomerates, sandstones and mudstones with major limestones and coals. The strata are predominantly continental fluvial in origin. Laterally extensive thin limestones, coals and liquefaction sandstone beds are valuable as markers and facilitate correlation within the northeastern Cumberland Basin area.

The Carboniferous strata are tentatively divided into the following informal units (Fig. 1): Windsor Group (undivided), Canso Group (undivided fine facies), Millsville-Middleborough Formation, Boss Point Formation, Cumberland coarse facies, Cumberland fine-Pictou grey beds, and the Pictou lower redbeds. General descriptions of these units are included in Ryan (1985). Formal lithostratigraphic nomenclature will be introduced when the mapping and subsurface analysis is sufficiently advanced and map units finalized. Correlation of these units in the 1985 study area with the

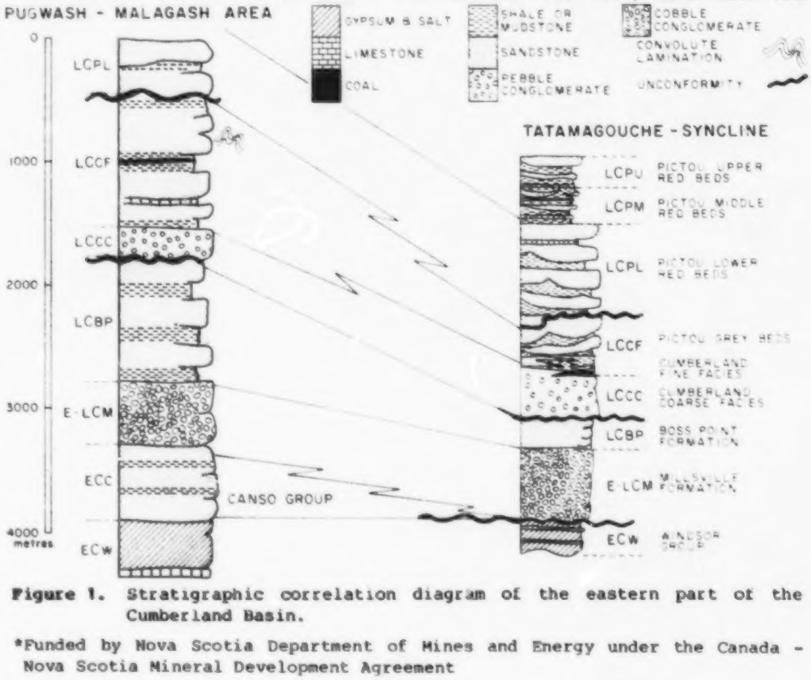
PUGWASH - MALAGASH AREA
GYPSUM & SALT
LIMESTONE
COAL
SHALE OR MUDSTONE
SANDSTONE
PEBBLE CONGLOMERATE
COBBLE CONGLOMERATE
CONVOLUTE LAMINATION
UNCONFORMITY
0
1000
2000
3000
4000 metres
LCPL
LCCF
LCCC
LCBP
E-LCM
ECC
ECW
CANSO GROUP
TATAMAGOUCHE - SYNCLINE
LCPU
PICTOU UPPER RED BEDS
LCPM
PICTOU MIDDLE RED BEDS
LCPL
PICTOU LOWER RED BEDS
LCCF
PICTOU GREY BEDS
CUMBERLAND FINE FACIES
LCCC
CUMBERLAND COARSE FACIES
LCBP
BOSS POINT FORMATION
E-LCM
MILLSVILLE FORMATION
ECW
WINDSOR GROUP

Figure 1. Stratigraphic correlation diagram of the eastern part of the Cumberland Basin.

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strata of the Tatamagouche Syncline area (Ryan, 1985) is possible with the most significant difference being the occurrence of the undivided fine grained Canso Group and the limited representation of the Pictou Group in the Pugwash-Malagash area (Fig. 1).

The Cumberland fine facies (Bell, 1944) and the Pictou grey beds (Ryan, 1985) of Westphalian C age, are lithologically similar and are therefore considered as one lithostratigraphic unit. The recognition of the Cumberland fine facies north of the Claremont Anticline (Figs. 1 and 2 and Fig. 1 of Boehner et al., this volume) greatly expands the area of potential economic coal occurrences within the Cumberland Basin (Synclinorium).

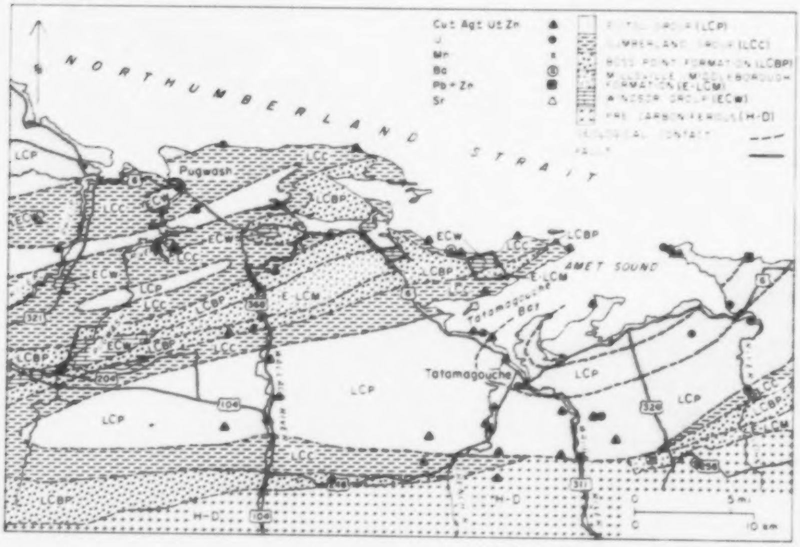
Cu± Ag± U± Zn
U
Mn
Ba
Pb+Zn
Sr
PICTOU GROUP (LCP)
CUMBERLAND GROUP (LCC)
BOSS POINT FORMATION (LCBP)
MILLSVILLE (MIDDLEBOROUGH) FORMATION (E-LCM)
WINDSOR GROUP (ECw)
PRE-CARBONIFEROUS (H-D)
GEOLOGICAL CONTACT
FAULT
N
NORTHUMBERLAND STRAIT
Pugwash
AMET SOUND
Tatamagouche Bay
Tatamagouche
LCP
LCC
LCBP
ECw
E-LCM
H-D
6
321
366
104
204
246
326
311
0
5 mi
0
10 km

Figure 2. Geological map and mineral deposits of the eastern part of the Cumberland Basin Nova Scotia

SEDIMENT DISPERSAL PATTERNS

Dispersal patterns within the Upper Carboniferous strata of the Pugwash-Malagash area trend to the north-northeast at approximately 020 degrees. This northeastward direction is consistent with the Magdalen Carboniferous Basin dispersal patterns but is discordant with the northwestward trend found within the Upper Carboniferous rocks of the Tatamagouche area (Ryan, 1985).

Paleocurrents in the Cumberland and Pictou Groups trend away from the Claremont Anticline suggesting a syndepositional development of this structure. In contrast, the domes such as Pugwash and Beckwith (along the extension of the Minudie Anticline trend) exhibit little proximal dispersal pattern variance indicating evaporite dome development probably postdates the sedimentation in these areas.

ECONOMIC GEOLOGY

The mineral occurrences in the 1985 field area (Fig. 2) can be classified into several types:

(1) basinal Cu, Pb, Zn, Ag, U redbed occurrences of diagenetic origin found proximal to reduction zones related to coalified plant material in channel lag sandstones;
(2) fault-fracture related occurrences such as celestite and barite veins.

In addition, potential (but as yet not fully documented) exploration environments may include:

(3) fault-fracture related Cu, Pb, Zn, Ag epigenetic mineralization;
(4) onlap-unconformity mineralization such as
    (a) grey sandstone onlap onto basement (possible Yava type) Pb, Zn, Ag, U;
    (b) unconformity of organic rich grey sedimentary rocks on a thick redbed succession (Kupferschiefer-redox type) giving rise to Cu, Pb, Zn, Ag, U mineralization.

Also noteworthy is the proximity of mineral occurrences to the Windsor Group evaporite structures. This association may have a genetic nature as suggested by Dunsmore (1977) or may reflect influence of the structural exposure of stratabound mineralization.

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GEOLOGY OF THE PUGWASH MINE - A PROGRESS REPORT*

D. C. Carter

INTRODUCTION

The Canada Salt Company began producing salt at Pugwash, Nova Scotia (Fig. 1 of Boehner et al., and Fig. 2 of Boehner and Ryan, this volume) in 1959 following the closure of the Malagash, Nova Scotia mine in the same year. Interpretation of the initial drilling at Pugwash suggested a simple flat-lying salt deposit. However, production work very quickly revealed that the deposit was a complex series of steeply dipping anhydrite units interstratified with halite. The anhydrite units are isolated in a matrix of halite by boudin development. Within the evaporite sequence, bedding dips from 30 degrees ('flat lying') to sub-vertical.

PREVIOUS WORK

Published geological reports on the Pugwash mine have been limited to the 630 foot level workings (Evans, 1972; Goodman, 1985). Evans discussed the origin and lithology of the anhydrite, and the stratigraphy and geometry of what was interpreted to be a complex salt diapir. These findings were based on 630 foot level workings available at the time. Subsequently, mining on the 630 level has been completed and production is now from the 830 and 730 foot levels. Investigations of the latter levels have not been attempted prior to this study.

GEOLOGICAL INVESTIGATIONS

Field work during 1985 focused on the 830 level with (1) detailed logging and sampling of over 100 development core holes (100-1200 feet in length) and (2) preliminary mapping of the workings. This work has indicated that, although the evaporites are structurally complex, individual anhydrites and ultimately the intervening halite units can be identified and correlated (Figs. 1 and 2). There are two or possibly three lithologically distinct anhydrite members exposed in the 830 level workings. This is consistent with the work of Evans (1972) but in contrast with the ten units suggested by Goodman (1985). The two recognizable members (ranging 15-30 m in thickness) have been termed informally the shaft (main) anhydrite and the borate anhydrite (Figs. 1 and 2). There is possibly a third anhydrite member which does not exhibit internal markers. However, it is suspected that further detailed investigations will identify the currently unnamed anhydrite units as fragments of one of the above.

The potash (carnallite and sylvite)-bearing halite and mudstone present on the 830 level probably occurs as primary mineralization within an upper stratigraphic portion of the evaporite sequence, as exposed in the present workings. This interpretation contrasts with the formerly postulated lower position and secondary origin implied by Evans (1972) and is

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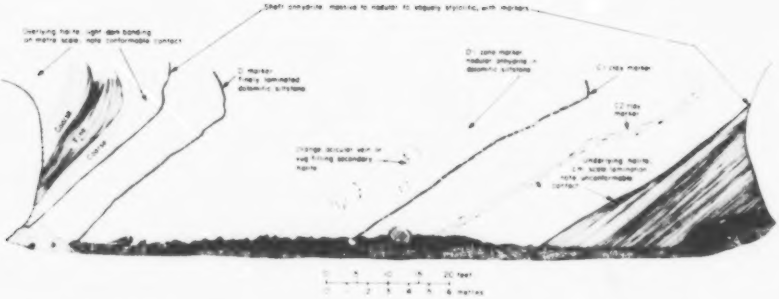
Overlying halite, light dark banding on metre scale, note conformable contact
Shaft anhydrite, massive to nodular to vaguely stylolitic, with markers
D marker finely laminated dolomitic siltstone
D1 zone marker nodular anhydrite in dolomitic siltstone
C1 clay marker
C2 clay marker
Orange acicular vein or vug filling secondary halite
Underlying halite, cm scale lamination, note unconformable contact
Coarse
Fine
Coarse
0 5 10 15 20 feet
0 1 2 3 4 5 6 metres

Figure 1. Lithological section of the shaft anhydrite member, Pugwash Mine. Sketch of 830 foot level workings intersecting the shaft anhydrite member. Note variable contacts and internal markers. Stratigraphic top to the left (north).

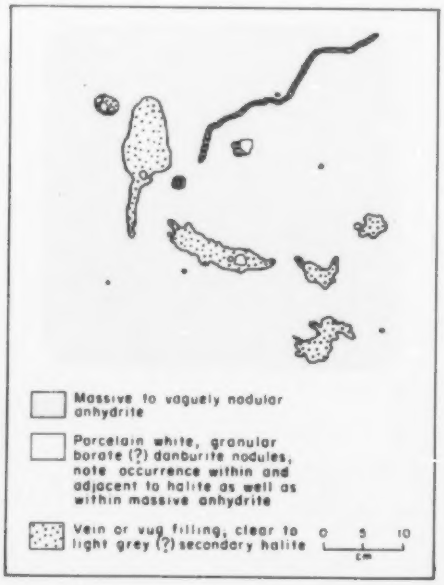
Massive to vaguely nodular anhydrite
Porcelain white, granular borate (?) danburite nodules, note occurrence within and adjacent to halite as well as within massive anhydrite
Vein or vug filling, clear to light grey (?) secondary halite
0 5 10
cm

Figure 2. Lithology of the borate anhydrate member, Pugwash Mine. Sketch of a detailed portion of the borate anhydrite member intersected on the 830 foot level. Note the absence and varied occurrence of borate nodules, stratigraphic top unknown.

based on the nature of the transition from clean to carnallite-bearing salt, their orientation with respect to the anhydrite members and preliminary geochemical analysis. This preliminary suggestion will be the subject of additional detailed mapping and geochemical profiling.

Geological and geochemical data will be significant to the understanding of the stratigraphic and structural complexities of this particular deposit, and will in turn be applicable to other evaporite sequences and potentially mineable deposits identified by exploration drilling.

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EPITHERMAL GOLD MINERALIZATION IN THE MEGUMA GROUP, NOVA SCOTIA*

P. K. Smith

INTRODUCTION

Since the mid 1800s when gold mineralization was discovered in the turbidite of the Lower Paleozoic Meguma Group, numerous genetic models and concepts have been proposed to help explain some of the observed features. These various models include the following ideas:

- remobilized paleoplacers originating from a basement source (Smith, 1981),
- discrete stratigraphic horizons displaying primary enrichment with subsequent metal mobilization (McBride, 1978),
- syngenetic exhalative activity during Lower Paleozoic turbidite deposition for both metals and quartz veins (Haynes, 1983),
- metal enrichment during sedimentation resulting from biogenic activity (Smith, 1981),
- lateral secretion during cleavage development (Crocket et al., 1983; Clifford et al., 1983),
- metal migration during hydraulic fracturing (Graves and Zentilli, 1976),
- structural traps associated with monoclinal folds associated with major upright folds (Bell, 1948),
- saddle reef structural traps in fold hinges associated with fold geometry (Malcolm, 1929; Keppie, 1976),
- various granite related models have suggested several associations including:
  - (a) spatial association with granitoid intrusions (Newhouse, 1936),
  - (b) granitoid rocks as a source or as a host (O'Reilly, 1983),
  - (c) granitoid intrusions as a heat source for mineralization fluid production (Smith, 1985).

Each of these models explains, in part, some of the observed features associated with many Nova Scotia gold deposits. They explain, in part, the relationships of the quartz veins to the stratigraphy, structure history and mineralization. Mechanisms for the emplacement of the auriferous veins is also suggested. However, no single model fully accounts for all of the observations from each of the deposits. In addition, there are several other factors which must be adequately explained to support a viable metallogenic model for the gold mineralization for part of the Meguma Group. These are:

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- Alteration: While alteration effects are an important indicator of ore genesis, little has been written about any effects around the gold deposits in Nova Scotia. However, some alteration effects are widespread around all of these deposits. They include mainly argillic, sericitic and silicic alteration. Carbonate minerals and chlorite are also observed as well as sulphide halos around some individual quartz veins. High alumina minerals (mainly andalusite) are also associated with the alteration effects.

- Paragenesis: A high proportion of visible gold in several of the deposits studied is shown to occupy a relatively late position in the paragenetic scheme. Here it can be observed to crosscut static regional metamorphic porphyroblasts as well as syn- to post-granitoid emplacement shear fabrics. Gold and associated ore minerals are common in vug and fracture fillings as well as in or near styolitic horizons within quartz veins.

- Metal Association: The close association of metals such as antimony and tungsten with gold might suggest an origin genetically linked with the emplacement of Devono-Carboniferous granitoid plutons. Models such as those invoking lateral secretion are less conducive to such an association.

- Multiple Veining: Many of the quartz veins, particularly the stratiform and stratabound veins, display composite vein textures. At several locations, a crosscutting angular vein can join and follow along a stratabound vein thus increasing the width of that stratabound vein and resulting in a different vein texture. This suggests that the relative times of emplacement for many of these veins may be closely related. The laminated texture of the stratiform veins formed by crack-seal mechanisms, frequently displays subsequent flooding by silica-rich fluids. These textures suggest a prolonged vein history with many commonly displaying post-tectonic emplacement, as at the Beaver Dam gold district.

- Breccias: Although not commonly reported within the gold districts, vein breccia zones occur at several of the deposits examined by the author. They vary in width from centimetres to metres and typically contain fragmented pelitic wall rock in a predominantly quartz matrix. Although the age range of these breccias have not yet been determined, they postdate shear fabrics which deform Devono-Carboniferous plutons. Large (2-10 m wide) generally barren quartz veins have a close association with these zones. Many districts are characterized by the occurrence of at least one such vein.

- Faults: Within all of the Meguma Group gold districts examined by the author there are significant fault zones trending subparallel to the main structural trends. Their attitudes are steep and they occur in close proximity to the anticlinal hinge areas. Relative strike and dip offsets on these structures is poorly documented. All of these faults show evidence of late movement and frequently contain visible gold where they intersect quartz veins.

Combining these observations with data from the previously mentioned metallogenetic models, this author would like to propose an alternative genetic model to explain many of the features from these turbidite-hosted deposits (Fig. 1).

EPITHERMAL MODEL

In recent years a great deal of attention has been paid to mineralization in hydrothermal systems associated with surface eruption. Hedenquist and Henley (1985) have described such a deposit from the Waiotapu Goethermal system in New Zealand. Similar features have been described for the Chetwynd deposit in Newfoundland (Yule, 1986). Although this model has not been previously suggested for the auriferous mineralization in the Meguma Group, some very close correlations can be made.

Many of the quartz veins in the Meguma Group show evidence of extensive brecciation during vein emplacement. Examples are found at the Forest Hill, Cochrane Hill, Beaver Dam, Fifteen Mile Stream and Goldenville gold districts. In many of these same veins there has also been extensive recrystallization which obliterates most of the early textures. However, wall rock fragments in many veins with random orientations are common in the gold deposits within the Meguma Group.

At the Forest Hill gold district there is fluidized breccia resembling porphyry. Here they crosscut the shear fabrics that deform the granitoid rocks adjacent to the mineralization. In one of these exposures, very fine grained gold is common. This host rock breccia material may represent the wanning stages of the mineralizing event in this area. Similar breccia have been described from areas of known geothermal fields such as New Zealand (Hedenquist and Henley, 1985).

A comparative examination of the metalliferous and non-metalliferous metapelites from the Cochrane Hill gold district (Smith, 1984) has shown the ore-bearing strata is an enrichment of Ag, As, B, Cd, Co, Mo, Pb, S, Sb, Sr and Zn in addition to gold. Enrichment of some of these elements (i.e. As, Mo, S and Sb) is also common around active geothermal fields in New Zealand (Hedenquist and Henley, 1985). Barite, a diagnostic mineral associated with epithermal mineralization, is not a common mineral in the Meguma Group. However, it is present in the Lake Fletcher area north of Halifax (Felderholf, 1978). Here barite veins crosscutting the Halifax Formation and the granitoid body to the west occur in a three metre wide zone over a one kilometre strike length. Barite mineralization is more common in the younger Devonian and Carboniferous strata throughout the Province and has not been described from any of the gold deposits in the Meguma Group. Lithogeochemical analyses from around the gold deposits suggest that barite did not precipitate contemporaneously with gold and its associated sulphide in the Meguma Group gold districts.

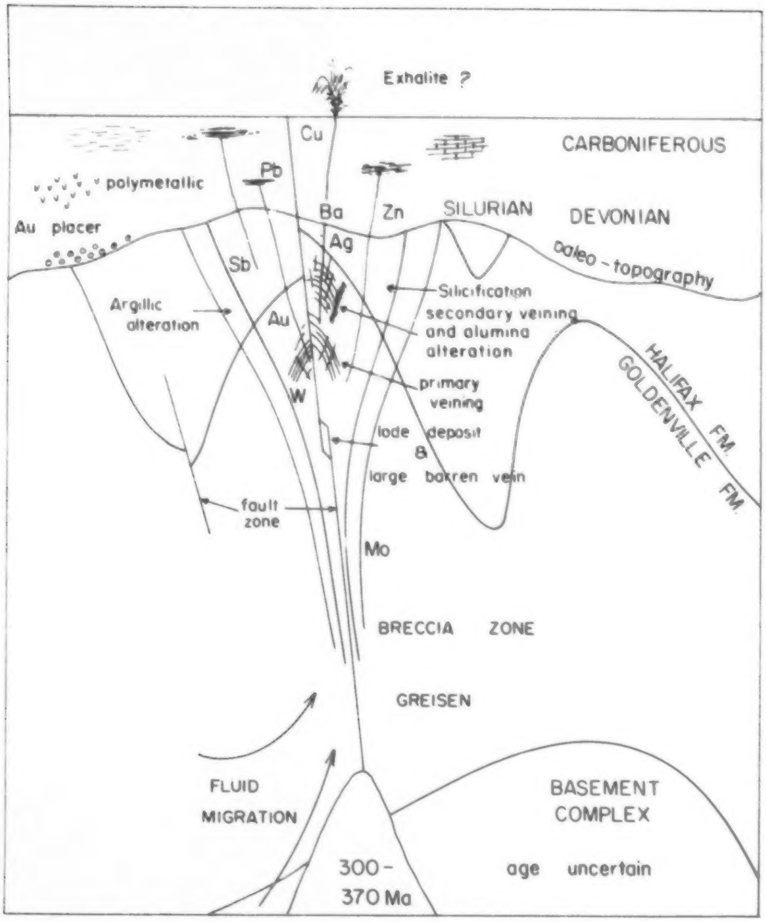
Exhalite ?
Cu
CARBONIFEROUS
Pb
polymetallic
Au placer
Ba
Zn
SILURIAN
DEVONIAN
Ag
Sb
paleo-topography
Silicification
Argillic alteration
Au
secondary veining and alumina alteration
HALIFAX FM
GOLDENVILLE FM
primary veining
W
lode deposit & large barren vein
fault zone
Mo
BRECCIA ZONE
GREISEN
FLUID MIGRATION
BASEMENT COMPLEX
age uncertain
300-370 Ma

Figure 1. A schematic epithermal genetic model which best fits the structural settings and associated alteration halos around Nova Scotia's turbidite hosted gold deposits. Fluid sources have a special association with granitoid intrusions. Metal zonation within the deposits is probable with venting occuring during Devonian and Carboniferous sedimentation.

In modern geothermal fields there is widespread clay alteration of the wall rocks. However, in the Meguma Group clay alteration around the gold deposits is not pervasive but instead more localized and restricted to the immediate area adjacent to the vein contacts. Argillic and siliceous alteration is observed up to three kilometres away from known gold mineralization at Cochrane Hill and Forest Hill. This variation of alteration style reflects the variation in host rock lithologies between modern geothermal fields and Meguma Group strata. Further examination of the gold deposits in these turbidite rocks is expected to reveal more extensive alteration than is currently known.

An additional characteristic of modern epithermal gold deposits is siliceous sinter deposits. Similar deposits in the Meguma Group have not been previously described. However, the recognition of a siliceous sinter deposit in the Marshdale area near the northern Meguma Terrane boundary indicates that hydrothermal fluids reached the surface. Devonian and Carboniferous strata lie adjacent to the sinter deposit. Although the database is inconclusive it may be suggested that possible subareal venting of metalliferous fluids took place during this time. This is also supported by the existence of gold mineralization in these and younger strata throughout the Province.

Acknowledging the possible existence of an epithermal system operative in or around the Meguma Group and its contribution of a significant proportion of gold and related mineralization, several factors relative to mineral exploration become very important. First, the presence of gold and associated minerals in Devonian and younger strata throughout the Province makes those rocks very favorable for mineral exploration programs. The probability of a significant auriferous zone in these strata may be high. Interesting values (>0.10 oz/ton) have recently been observed in sulphide-rich strata in Pictou County. As well, gold values of 30 ppb in fine grained green pyritiferous siltstone have been noted. Second, the recognition of epithermal or similar features in the younger strata may aid in the targeting of exploration sites in the underlying Meguma Group. An example of this is the barite occurrence in the Halifax Formation at Lake Fletcher. A further understanding of the structural setting of the mineralization might aid in directing the explorationist to a favourable economic target.

Like most other genetic models which attempt to explain the gold districts in the Meguma Group, an epithermal model does not fully account for all of the observed features in all of the deposits across the Province. However, the documentation of the feature common to modern geothermal systems may aid in the discovery of new gold deposits in the Province.

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PRELIMINARY GEOLOGICAL DESCRIPTION OF THE C-1 DIAMOND-DRILL HOLE AND ITS ANTIMONY-GOLD POTENTIAL, HANTS COUNTY, NOVA SCOTIA*

P. K. Smith and D. E. Webber

ABSTRACT

Diamond-drilling northwest of the West Gore antimony-gold deposit intersected a wide section containing numerous thin fissure quartz veins and high sulphide content in the Cambro-Ordovician Halifax Formation. Three distinct morphologic types of quartz-carbonate veins show close similarities to mineralized fissure quartz veins from the West Gore deposits. The presence of pyrite, pyrrhotite, arsenopyrite and sphalerite in the drill core strongly suggest that gold-antimony mineralization may lie near this drill location in structurally favourable host rocks.

Complex step fold geometry with associated subhorizontal cleavage and parasitic recumbent minor folds make this area favourable as a structural trap for mineralization. Subsequent strong shearing and faulting has affected both thinly laminated host rocks and vein lithologies. This extensive subhorizontal shearing suggests that large-scale regional movement occurred near this area.

Basal lithologies of the Horton Group intersected in the upper part of the hole show potential for mineralization.

INTRODUCTION

Antimony was first discovered in the West Gore area in 1880 with the mine opening in 1884. The main working at the mine was through a vertical shaft down to a depth of 256 m (840 ft) and is located on the south limb of the West Gore Anticline (Stevenson, 1959). Several other shafts on the property vary from 12 to 60 m.

Mineralization occurs along a steep southward-dipping northwesterly trending quartz vein. This highly fractured fissure vein crosscuts northeastly trending bedding and has a strike length in excess of 900 metres. The width of the mineralized fissure vein varies from <1 cm to 1.2 m. Strata hosting this vein are Lower Paleozoic Halifax Formation. In the West Gore area the bedding dips moderately towards the southeast. A poorly developed slaty cleavage lying close to bedding dips slightly more steeply. Geological mapping directed by Douglas (1939) and Stevenson (1959) also shows shallow southeasterly dipping cleavage and bedding with cleavage suggesting consistent younging upwards directions. The foliation on the south limb of the anticline at the mine site varies between 40° and 50°. It becomes significantly more shallow in the area of this drilling program.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

The mineralization along the vein is antimony and gold. At least seven antimony bearing minerals (Chatterjee, personal communication, 1985) including stibnite and native antimony occur. Here, native gold is found in close association with the antimony mineralization, and both occur as late crystallization products in the paragenetic sequence (Boyle, 1979). Burzynski (1985) also reports the occurrence of silver.

Production records between 1884 and 1939 indicate that 8,645 tons of antimony concentrate and 7,049.9 ounces of gold were recovered from the mineralized vein (Cameron and Cameron, 1957).

Additional reports of this deposit are documented as open file reports at the Nova Scotia Department of Mines and Energy in Halifax. Notable amongst these are reports by Cohen (1949), Messervey (1932) and Douglas (1939).

PURPOSE OF PROJECT

This project was initially undertaken to access the potential for additional fracture controlled antimony-gold mineralization northwest of the main fissure vein at West Gore. The hole location was situated at the intersections of east-west and northwest-southeast trending faults as mapped by Douglas (1939). It was collared in Horton Group strata to maximize the stratigraphic information (Fig. 1).

DIAMOND-DRILL HOLE LOCATION

This vertical diamond-drill hole was spotted 1480 m northwest of the main shaft on the West Gore property. It is located on topographic map sheet 11E/04 at the intersections of McInnis and Old Sandford Brooks. Co-ordinates are surveyed at North:4994264.71 m and East:359285.88 m with an elevation of 53.3 m. The hole was drilled within the closure area (Fig. 2) and was completed to a depth of 646.48 m.

STRATIGRAPHY

The top 110.1 metres intersected mixed sediments of the Horton Group with moderately inclined bedding attitudes. The four metre thick pebble conglomerate at the base of the Horton Group is separated from fine grained mixed metasediments of the Halifax Formation by a four metre graphitic zone. Halifax Formation sediments were then encountered to the bottom of the hole.

HORTON GROUP

The four dominant rock types encountered include sandstone pebble conglomerate, arkosic to clean sandstone, dark shale and mudstone. Their sheared equivalents were also encountered. Bedding intersections with the core show inclined laminations from 20° to 70°.

CONGLOMERATE

At the base of the Horton Group a four metre wide grey polymictic pebble conglomerate lies in fault contact upon graphitic slates of the

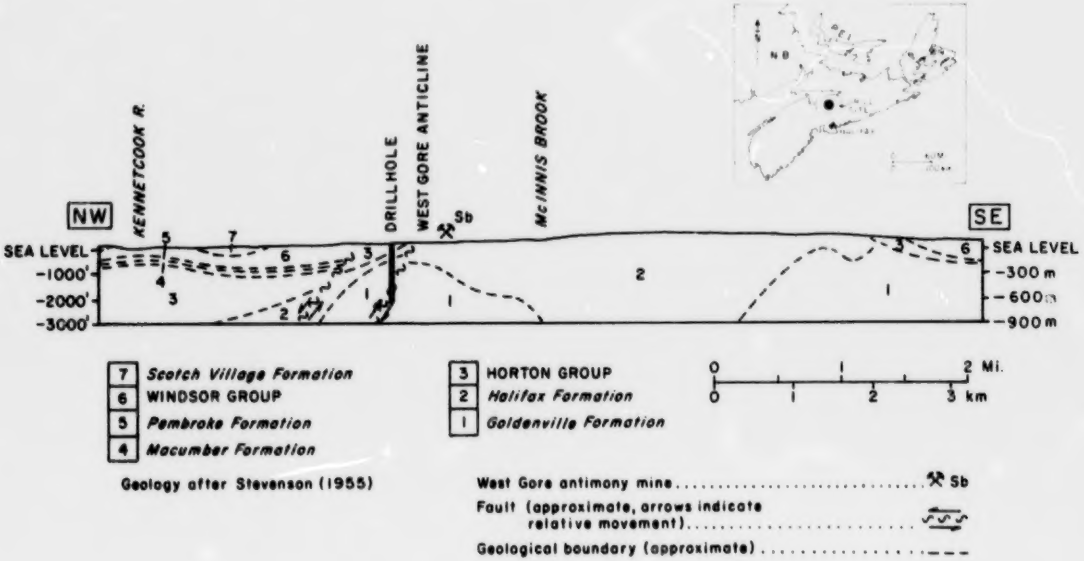
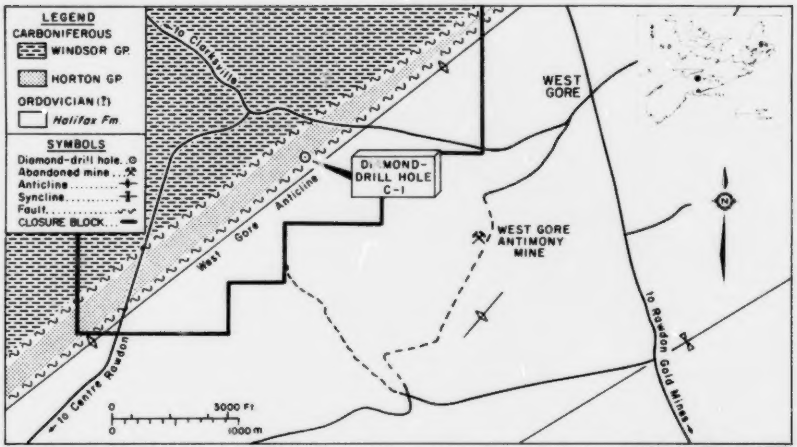

NW
KENNETCOOK R.
DRILLHOLE
WEST GORE ANTICLINE
Sb
McINNIS BROOK
SE
SEA LEVEL
-1000'
-2000'
-3000'
SEA LEVEL
-300 m
-600 m
-900 m
7
5
6
4
3
2
1
NB
PEI
0
1
2 Mi.
0
1
2
3 km
7 Scotch Village Formation
6 WINDSOR GROUP
5 Pembroke Formation
4 Macumber Formation
3 HORTON GROUP
2 Halifax Formation
1 Goldenville Formation
Geology after Stevenson (1955)
West Gore antimony mine .... Sb
Fault (approximate, arrows indicate relative movement) ....
Geological boundary (approximate) ....

Figure 1. Cross-sectional reconstruction used for locating position of diamond-drill hole (after Stevenson, 1959).


LEGEND
CARBONIFEROUS
WINDSOR GP.
HORTON GP.
ORDOVICIAN (?)
Halifax Fm.
SYMBOLS
Diamond-drill hole
Abandoned mine
Anticline
Syncline
Fault
CLOSURE BLOCK
to Clarksville
WEST GORE
DIAMOND-DRILL HOLE C-1
West Gore Anticline
WEST GORE ANTIMONY MINE
to Centre Rawdon
to Rawdon Gold Mines
N
0
3000 Ft
0
1000 m

modified after Stevenson (1955)

Figure 2. Geology surrounding diamond-drill hole (C-1) near the West Gore antimony mine.

Halifax Formation. The conglomerate consists of well rounded non-spherical fragments of grey to greenish grey, fine grained sandstones, schistose black seriatic slate, pinkish schistose arenaceous slate and vein quartz material. Fragment size varies from sand size up to 10 cm with smaller fragments forming interstitial material. Minor disseminated pyrite occurs throughout the unit.

The character of fragments and the basal location suggest that much of the material has been derived directly from the underlying Meguma Group.

SANDSTONES

Several sandstone varieties occur throughout the entire Horton group sequence. One variety is a medium grained arkose with and without laminations of dark shale or carbonaceous debris and obvious plant fossils. Average grain size in these sandstones varies up to two mm. Abundant feldspar and black slate fragments of similar grain size are found. At 27.2 m, a 10 cm wide zone of arkose contains abundant pyrite and marcasite near the top of an upwards graded bed. Pyrite framboids up to one cm in diameter occur at the top of this bed. As grain size of the arkoses decreases the proportion of thinly laminated carbonaceous material increases.

A second variety is a fine grained grey sandstone which forms a common part of the Horton Group strata here. Thin dark pelitic and carbonaceous laminations are common throughout these sandstone units. Spherical pyrite lenses are present along some laminations. Thin horizons rich in plant fossils are common within the coarser fractions of these beds. These finer grained interbedded sandstones beds are more prominent towards the base of the sequence.

A third variety consists of clean, medium- to fine-grained arenaceous sandstone. It is either whitish grey or light brown and occurs at several intervals toward the lower part of the Horton section. The light coloured sandstone has no laminations and approaches a quartz arenite (Folk, 1968) composition. The brown units have thin undulating darker laminations, fine grained disseminated pyrite and trace amounts of sphalerite.

SHALE

Dark grey to black thinly laminated fissile shale beds are common. They vary compositionally from pure shale to thinly laminated silt containing up to 50 per cent very fine grained arenaceous silty sandstone. Cross-laminations in these beds indicate stratigraphic tops are right-way-up. Gradational contacts with interbedded fine mudstones and coarse sandstones are common. Carbonate-rich, 1-5 cm diameter, sandstone concretions are prominent throughout some beds. Carbonaceous and coaly laminations with plant fossils are present and generally found where there are more arenaceous laminations within the beds.

MUDSTONE

Several beds, measuring 10 cm to 10 m, of grey to brown mudstone occur throughout the section. These beds are generally nonlaminated although 2-5 cm wide sandy horizons are found sporadically in several of the beds higher in the section. Very fine grained, carbonate-bearing, sandy concretions or nodules occur throughout these beds. They are distinctly more brown in colour and weather a dark brown colour. Minor trace fossil tracks within the mudstones are filled with clean fine grained quartz sand. Minor pyrite framboid lenses are also found within these mudstone beds but are not common.

BRECCIA

Thin fault breccias and shear zones occur at several localities throughout the Horton Group strata. They range in width from 1 mm up to 50 cm and are found most commonly in the finer grained sediments. Fragments composing these breccias have been derived from the immediate wall rocks enclosing the zones. A fine grained crushed matrix surrounds the fragments.

HALIFAX FORMATION

The Halifax Formation in this diamond-drill hole consists of four distinct rock units, namely sandstone, silt, shale and brecciated equivalents. There are also three distinct vein types within these unit. These are described later in this paper.

SANDSTONE

Sandstone ranges in colour from whitish or very light grey to medium grey. This variation in colour is related to the relative amounts of sulphides within the unit as well as relative quartz, silt, and shale proportions. The grain size of this unit ranges from very fine sand to coarse silt (Folk, 1968). Thin, dark, laminated partings of silt or shale are common.

Sulphide minerals include pyrite, pyrrhotite, arsenopyrite and sphalerite. Pyrite is also found in quartz and calcite veins, and cross-cutting stringers. Pyrrhotite is found either as lenses, rounded crystals or irregular shaped crystal aggregates. It ranges in grain size from just visible to crystals 1-2 cm in diameter. The amount of pyrrhotite decreases slightly toward the bottom of the hole. It also occurs near sandstone contacts as concordant stringers 1 mm to 1 cm wide. Crystals range in size from detectable (0.1 mm) to 1 cm with the crystal size increasing towards the bottom of each sandy bed. The amount of pyrite increases towards the contacts with shale or silt. Arsenopyrite is very rare in this Halifax Formation strata and was detected in only four places in the hole. These occurrences are located in the upper portion of the intersected Halifax Formation with the first appearance at approximately 180.5 metres. The arsenopyrite crystals are usually surrounded by quartz pressure shadows. Quartz-carbonate and calcite veins and stringers occur throughout the formation. Secondary quartz, ankerite and calcite are also present.

Primary Sedimentary Structures

The primary sedimentary structures found in the sand unit include crossbedding, graded bedding, slumping and cone-in-cone structures.

Almost every sandstone bed in this section is crosslaminated. In some beds the angle of crosslamination truncation is small, however, in most beds it makes a higher angle approaching 90°. The most distinct crossbedding is found in the lower two thirds of the section. All crossbedding indicates a right-way-up younging direction. Graded bedding is very rare in this section but where present has a fining-upward sequence. The sandy beds appear to show primary slumping in several areas throughout the hole. Dislocated slumps or collapsed ripple are located in siltstone beds. These slumps are very rounded, sometimes folded and very often contain mineralization. A few slumps contain pyrite while many contain large rounded grains and lenses of pyrrhotite. Cone-in-cone structures measuring one cm high are found in two locations within sandstone beds. They are both adjacent to small graphitic shear zones and parallel to bedding.

Variations in the sandstone include not only colour, grain size and sulphide content, but also the degree of shearing, the crossbedding angles and the amount of quartz veins. Most of the shearing occurs near contacts with the shale and other fissile areas. The massive sandstone beds are less deformed than other rock types. The bedding angles to core vary from horizontal to angles up to 70°.

SILTSTONE

The siltstone is medium to dark grey and includes pyrite and pyrrhotite as the major sulphide constituents. Pyrite occurs as disseminations up to 7 mm, as beds up to 5 mm thick, in thin stringers and as lenses in folds. Some of the larger pyrite grains near the bottom of the hole are surrounded by a quartz halo. Pyrrhotite occurs as lenses, rounded grains and small dissemination along bedding surfaces.

Calcite, quartz, graphite and chlorite are also present as secondary minerals. Calcite is found in the siltstone as stringers and in vugs in good crystal form and it is concentrated mainly at the top of the section. Graphite and chlorite found along bedding surfaces indicate a chlorite grade regional metamorphism for the Halifax Formation. Graphite commonly occurs as smears or partings along bedding surfaces.

Primary Sedimentary Structures

Parallel and crosslaminations are the most common sedimentary structure in the siltstone. Thin interlaminations of fine grained sand and fine silt are locally common.

Local variations of colour and proportion of interbedded material occur in the siltstone beds. The pyrite and pyrrhotite content varies within interbedded lithologies.

SHALE

In this drill section, shale is dark grey to black, ranges from moderately arenaceous to very fissile and locally contains abundant graphite. Pyrite, pyrrhotite and minor marcasite are common. Pyrite occurs as small grains and lenses on the bedding surfaces, large disseminated grains (up to 1 cm diameter), as bedded stringers and in quartz veins. Pyrrhotite occurs as small lenses on the bedding surfaces. Quartz carbonate veins and stringers with shale parting are common. Calcite is restricted to stringers and quartz veins, and most commonly occurs at the top of the Halifax Formation at this location. Chlorite and graphite occur on the bedding surfaces.

Primary Sedimentary Structures

Sedimentary structures in the shale include parallel laminations. These laminations are either fine sand or silt up to 5 cm thick.

VEIN TYPES

Three distinct morphologic types of veins have been recognized from this drill core. They include vertical or crosscutting quartz veins, bedding-parallel quartz veins and irregular replacement calcite veins.

CROSSCUTTING VEINS

These veins consist mainly of quartz and ankerite and are preferentially developed in the more sandy units. These crosscutting veins occur as en echelon arrays. They range in size from wisps and stringers measuring 1 mm wide and 1 cm long to veins measuring up to 6 cm wide and >25 cm long. They are commonly fibre-filled and contain numerous open vugs. Wall rock inclusions are locally common. The general mineral assemblage of these veins includes quartz and ankerite with minor chlorite, sericite, pyrite, pyrrhotite, chalcopyrite, sphalerite, graphite, calcite and rock inclusions. Chlorite commonly occurs along the vein margins.

Calcite and sphalerite fill vugs in the veins while other minerals occur as veins, stringers, disseminations or fracture fillings. Some of these veins, especially the smaller ones, contain a high pyrite content. Vertical stringers may also consist entirely of ankerite.

Most of these crosscutting veins contain fibrous quartz with a horizontal fibre orientation (Fig. 3). Thin ankerite veins crosscut and fill open spaces within larger quartz veins. In general the ankerite is slightly later than the quartz. Small discontinuous side or horn type veins are commonly displayed along the vein margins. Pyrite veinlets commonly crosscut the previously described quartz-carbonate veins. Second generation quartz and ankerite filling small fractures crosscut these pyrite stringers and lenses at various angles.

These veins have been strongly sheared by subsequent deformation to form reclined open folds.

BEDDING-PARALLEL VEINS

These veins consist of thinly interlaminated quartz, ankerite and sheared rock fragments. They are generally less than 1 cm wide, parallel to bedding surfaces and contain abundant randomly oriented wall rock fragments. Quartz and ankerite are found as both separate and composite laminations up to 1 mm wide. Dark sheared slate inclusions are present as both bedding-parallel bands and as randomly oriented, variably sized inclusions (Fig. 4). Invariably, all rock inclusions are intensely sheared and contain abundant graphite. Pyrite and pyrrhotite are locally common in these veins.

REPLACEMENT CALCITE VEINS

Irregular calcite veins up to 1 cm wide occur in calcareous thinly laminated siltstones. These veins consist of crystalline calcite surrounded by a 1-2 mm wide zone of fibrous calcite. Fibre growth is consistently perpendicular to the vein walls. Sulphides are not common in these veins and only pyrrhotite is observed. Where the vein is widest there is a thin median crack, suggesting an extensional fracture as the locus of the vein accompanying replacement.

SULPHIDES

Sulphides are extremely common through this diamond-drill hole intersection and deserve further descriptive comment. Pyrite framboids and disseminations mentioned in the Horton Group lithologies earlier are not further described here. However the following sulphides from the Halifax Formation will be described: pyrite, pyrrhotite, marcasite, arsenopyrite, chalcopyrite and sphalerite.

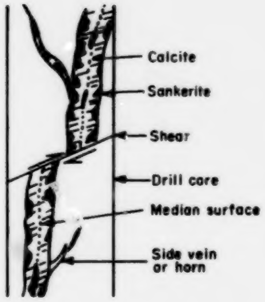


Figure 3. Crosscutting quartz-carbonate vein with small side vein. Fibrous calcite is common. Small side veins or horns are common and locally en echelon.

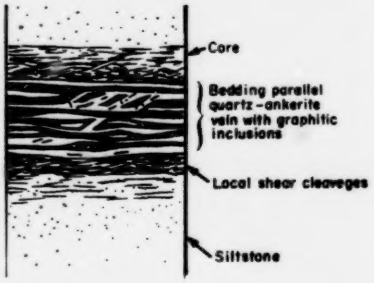

Core
Bedding parallel quartz-ankerite vein with graphitic inclusions
Local shear cleavages
Siltstone

Figure 4. Bedding parallel quartz-ankerite vein with abundant graphitic shale inclusions.

PYRITE

Pyrite is the most abundant sulphide occurring in amounts up to 15 per cent by volume in three distinct settings. Firstly, it occurs throughout the drill intersection as disseminated euhedral cubic crystals. These individual crystals reach a maximum size of just <1 cm and are frequently mantled by a thin zone of fibrous quartz.

Secondly, pyrite is concentrated in stringers and veinlets in veins and wall rocks, at high and low angles to the core axis. They also fill small open fractures and vugs at intersecting joints and fractures. Many of these veins have a wispy appearance, possibly resulting from shear deformation. Locally some of these veinlets show extensional features such as fibrous pyrite growing from the vein walls.

In the third setting, pyrite occurs as small aggregates in the centres of 1-3 mm long quartz-sulphide lenses found exclusively in fine grained wall rock. The lenses have a thin outer mantle of pyrrhotite, a middle zone of mainly quartz-carbonate and an inner core of pyrite. This assemblage may reflect low grade metamorphic conditions in these rocks.

PYRRHOTITE

Pyrrhotite is the second most abundant sulphide occurring throughout the hole. It is found most commonly as thin films along individual shear planes, and as lenses up to 5 mm thick and several centimetres long. It is frequently restricted to specific bedding laminations but exhibits remobilization along slaty cleavage and bedding parallel shear planes. Stringers of pyrrhotite are not common although it is observed parallel to the margins of pyrite stringers. Minor pyrrhotite also occurs along fractures within some quartz veins.

MARCASITE

Marcasite occurs in several samples as parallel veinlets surrounding both sides of pyrite veins and stringers. Marcasite is also found in association with pyrite filling open fractures in crosscutting and bedding parallel quartz veins.

ARSENOPYRITE

Four occurrences of disseminated arsenopyrite crystals were intersected in the Halifax slates. They are restricted to thicker sandstone beds but are not a dominant constituent of them. They have an average grain size of 2-3 mm and have 1 mm wide pressure shadows. These crystals have numerous small sulphide and silicate inclusions. A thin high angle pyrrhotite stringer crosscuts the centre of one arsenopyrite crystal.

CHALCOPYRITE

One occurrence of chalcopyrite was observed. It is seen as a small crystal aggregate adjacent to a larger pyrrhotite-pyrite mass within a crosscutting quartz vein. This chalcopyrite measured <1 mm in diameter.

SPHALERITE

Sphalerite, like chalcopyrite, is not a common constituent in the drillhole intersection. One small mass of sphalerite measuring about 4 mm in diameter occurs in a quartz vein vug adjacent to siltstone host rock. This crosscutting vein measuring 1 cm wide is filled with massive non-fibrous quartz. No associated sulphide minerals were observed in contact with this sphalerite. Minor disseminated sphalerite is also observed along several narrow (1 to 5 mm) fine grained breccia zones.

STRUCTURE

According to previous geological mapping by Stevenson (1959) this drillhole (C-1) is located very near the trace of the anticlinal hinge of the northeasterly trending West Gore anticline (Fig. 1). The cross-section indicated an upright open fold geometry. However, measured cleavage attitudes which reclined between 30° and 50° to the south in the vicinity of the West Gore mine site suggest that the minor structure may not be upright. Similar shallow cleavage attitudes and minor reclined folds observed in Halifax Formation strata from the drill site suggest the major structure is reclined (Fig. 5).

The structure of the Horton Group is omitted from the following description as cleavage and associated folds are not observed.

CLEAVAGE

Throughout the drill section, cleavage in the Halifax Formation is sporatically developed. Both slaty and pressure solution cleavage occur locally although neither is pervasively developed. Slaty cleavage, defined by new muscovite and sericite grains, is restricted to a few of the dark shale or slate horizons. It makes a low angle with horizontal bedding

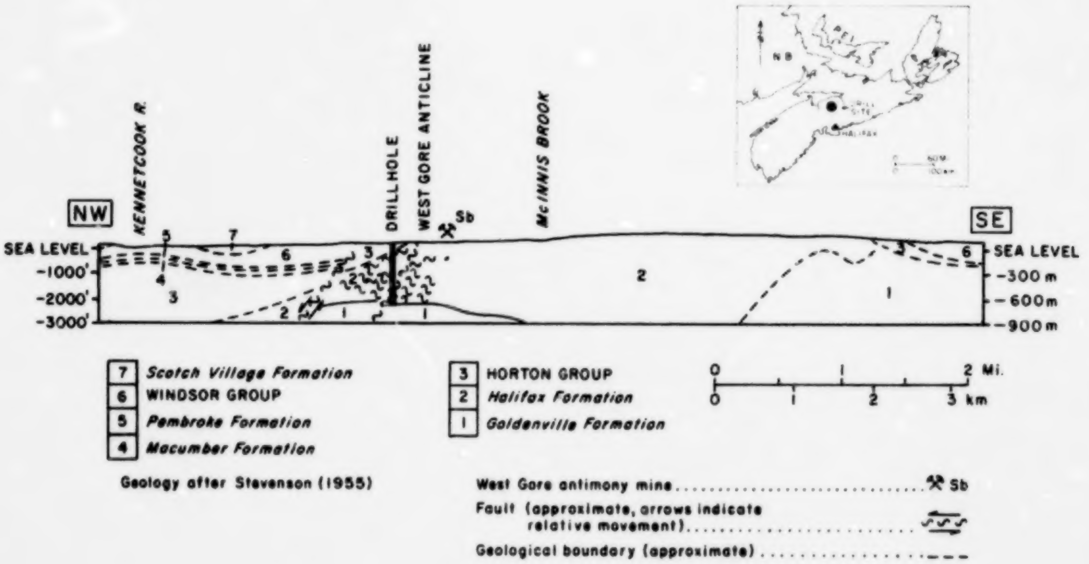

NW
KENNETCOOK R.
DRILLHOLE
WEST GORE ANTICLINE
Sb
McINNIS BROOK
SE
SEA LEVEL
-1000'
-2000'
-3000'
SEA LEVEL
-300 m
-600 m
-900 m
7
6
5
4
3
2
1
7 Scotch Village Formation
6 WINDSOR GROUP
5 Pembroke Formation
4 Macumber Formation
3 HORTON GROUP
2 Halifax Formation
1 Goldenville Formation
0
1
2 Mi.
0
1
2
3 km
Geology after Stevenson (1955)
West Gore antimony mine
Sb
Fault (approximate, arrows indicate relative movement)
Geological boundary (approximate)
N B
P.E.I.
DRILL SITE
HALIFAX

Figure 5. Schematic cross-sectional reconstruction based on data from diamond-drill hole C-1 (modified from Stevenson, 1959).

surfaces but always indicates stratigraphic tops are right-way-up. The average dip of this cleavage is between 20° and 30°. The dip direction is inferred to be to the south based upon regional mapping.

Pressure solution cleavage occurs at three locations in this section, at 334.3 m, 379.15 m and 470.25 m. These zones vary in width from 10 to 20 cm. They occur in silty horizons and are defined by thin seams enriched in phyllosilicate minerals. The lithon remains visibly unchanged. This cleavage dips subhorizon making an angle of about 5° between the bedding.

FOLDS

Minor folds having an amplitude to wavelength ratio of about 2:1 occur at several locations throughout the drill section. They occur in thinly laminated silt-shale sequences and generally have an associated axial planar slaty cleavage. An interesting feature of these folds is that they are reclined in a subhorizontal position. Recumbent structures of this nature are not common elsewhere in the Halifax Formation. In close association with these recumbent folds, more competent beds are locally steepened to the subvertical position. The interpretation of this structure is shown in Figure 6 and is a good indication of a larger monoclinal step fold with the same geometry. Monoclinal structures on the limbs of major folds are not uncommon elsewhere in the Meguma Group and are often associated with gold mineralization (i.e. Caribou; Bell, 1948). However, none have been previously described to have a recumbent geometry as observed here.

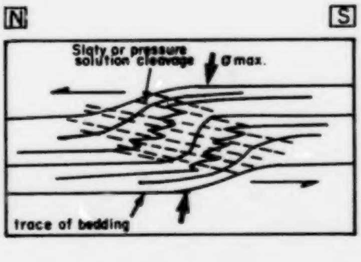


Figure 6. Local fold geometry in the Halifax Formation in the area of the C-1 diamond-drill hole.

Based upon investigations in Guysborough County (O'Brien, 1983; Smith, 1983; Keppie, 1983; Haynes, 1983; Smith et. al., 1985) these folds are equivalent to F_2 structures.

ECONOMIC GEOLOGY

As determined from this drillhole intersection, the economic significance of and potential for this area is very encouraging.

HORTON GROUP

In the Horton Group strata, minor disseminated pyrite and marcasite framboids are the dominant sulphides. The occurrence of minor sphalerite at 305 feet (93 m) may indicate economic potential in the upper part of the drill intersection. The basal conglomerate, which contains approximately 20 per cent vein quartz pebbles, may be a good candidate for paleoplacer gold although no visible gold was observed in this study. Both Goldenville and Halifax Formation pebble lithologies in this conglomerate indicate that the paleoerosional surface lies near the top of Goldenville Formation. Historically more gold deposits are located in the upper part of the Goldenville Formation (Malcolm, 1929). Because of the high content of vein quartz derived from this stratigraphic position further investigations are warranted.

HALIFAX FORMATION

Although no visible gold or antimony mineralization was observed by the authors during examination of this drill core, the potential for economic mineralization is promising. The sulphide content of the intersected Halifax Formation is high, comprising up to 15 per cent combined pyrite and phrrhotite in several parts of the section. Thin pyrite horizons <1 cm wide and disseminated pyrite are both abundant. Crosscutting pyrite veins are also observed in several parts of the section. Pyrrhotite, occurring as lenses ranging up to 5 mm wide and 6 mm in diameter, are common throughout the section. In sandy beds at 180.5 m and between 300 and 303 m, euhedral arsenopyrite crystals are observed with an average diameter of 2-3 mm. All of the arsenopyrite crystals have small quartz pressure shadows. At both of these intersections there are more crosscutting quartz-carbonate veins than in the rest of the section. In the Meguma Group, there is a strong correlation between auriferous quartz veins and arsenopyrite. Although the arsenopyrite content in the drill section is not high the gold potential can not be overlooked. The strong association of gold and antimony at the West Gore mine site suggests that a similar correlation can be inferred for this area (see appendix).

Quartz-carbonate veins form three distinct morphologic types namely high angle crosscutting quartz-carbonate veins, bedding parallel quartz-carbonate veins and irregular calcite replacement veins. Both the bedding parallel and crosscutting veins display fracturing and brecciation by subsequent shearing. Pyrite veinlets crosscut the high angle quartz veins. Many of the sheared crosscutting quartz veins closely resemble antimony-bearing veins found in the dump material at West Gore adding further potential for the economic significance of this area. The calcite veins contain no sulphides, do not occur in contact with other vein types and are found at only two localities in the section. Crosscutting relationships between the different quartz-carbonate vein types indicate that introduction was contemporaneous. However, intersections of these two vein types is rare.

Based on the abundance of quartz veins the most significant part of the section lies between 130 and 170 m. At this location, crosscutting en echelon extension fractures are the most numerous and exhibit the highest potential for mineralization.

CONCLUSIONS AND RECOMMENDATIONS

Upon completion of the vertical diamond-drill hole northwest of the West Gore antimony-gold deposit several significant conclusions can be stated:

- The contact between the Horton Group and the underlying Halifax Formation is an angular unconformity. The main source area for the Horton Group during initial sedimentation was the Meguma Group. During this time the paleoerosional surface was just below the Halifax-Goldenville Formation boundary where quartz veins were numerous.

- The major fold geometry is not a simple upright symmetrical open fold as previously mapped. This preliminary assessment indicates that the major structure in this area has a reclined step fold geometry. The associated subhorizontal cleavage and recumbent parasitic folds indicate that the hole intersected the broad horizontal hinge area of this asymmetric step fold. The influence of shearing subsequent to folding is believed to be substantial although the exact nature of deformation and shear displacement is uncertain.

- The mineral potential of the strata encountered by this drilling is very promising. The amount of quartz is high and sulphides, including pyrite and pyrrhotite, are very common. Minor arsenopyrite and sphalerite are also present. This close association of quartz and sulphides renders this area most favourable for potential gold and antimony mineralization.

Based upon the results of this study and surrounding geology, the authors recommend further drilling immediately south of this drill site. Potential mineralization should be intersected at a depth between 150 and 200 m.

ACKNOWLEDGMENTS

The authors thank Mr. Arthur Penton for access to his property to conduct this project. Appreciation is extended to the Drilling Division staff of the Nova Scotia Department of Mines and Energy for their long hours of toil in recovering the diamond-drill core. Survey co-ordinates and elevation of the drillhole were measured by Mr. Ian MacDougall. We are also indebted to Jennifer Bates for editoral comments and to Rita Jones and Barb MacDonald for typing of this manuscript.

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APPENDIX

Visible gold mineralization has been recovered from a large block of quartz vein material found in the dump at West Gore. This sample is approximately 30 cm (12 inches) wide and consists primarily of crystalline quartz and ankerite. Quartz crystals vary from small euhedral grains 1 cm long and <1 mm in diameter and crystal mosaics up to 3 cm in diameter and >10 cm long. These crystals are generally oriented perpendicular to the vein walls. Dark ankerite crystals with minor calcite fill many interstitial cavities surrounding the quartz crystals.

The texture of this vein is extremely vuggy in comparison with most quartz veins recognized in the Meguma Group and is not observed in gold deposits elsewhere in the Meguma Group. However, this vein rock is of extreme interest, as it contains abundant very fine grained disseminated native gold within both small and large quartz crystals. Geochemical analysis shows the gold content to be 103 gms/ton. It appears that this vein type was not actively explored and mined because it contains almost no antimony mineralization and the disseminated gold is extremely fine grained. Further examination of this vein type is warranted.

BASE METAL PROJECT*

J. M. Patterson

INTRODUCTION

In an attempt to assist and stimulate exploration activity for base metals in the Province, representative deposits have been selected for study. The host rocks of the chosen deposits range in age from Precambrian to Late Carboniferous. The deposit types represent possible skarn deposits, deposits in volcanic terranes, and carbonate- and sandstone - hosted deposits (Fig. 1).

The project is part of the Canada - Nova Scotia Mineral Development Agreement and, as such, research of the selected deposits is under the auspices of federal, provincial and academic agencies. Figure 2 shows the initial responsibility for research, though this can change throughout the duration of the project.

Five deposit types have been selected for study:

1. The Precambrian metacalcareous rocks of the George River Group host the zinc deposits at Lime Hill and Meat Cove. These deposits are considered to be skarn associated, and the study, under Geological Survey of Canada (GSC) auspices will investigate this aspect and elucidate the geological and mineralogical controls of the deposit, with a view to evaluating the ore potential of the George River Group.

2. A study of the Precambrian sedimentary-exhalative deposit at Stirling (Mindamar) is important in attempting to construct suitable models to guide exploration in this terrane. The precious metal content of the Stirling deposit has made an important contribution in the past and will be of increasing significance in the future.

3. The Eastville (Gold Brook) deposit represents our first significant base metal occurrence of the Meguma Group. Located in the Goldenville/Halifax transition zone, a study of the deposit will hopefully lead to expanded exploration in a terrane which has historically been prospected for its gold content. The initial studies are under the auspices of Dalhousie University.

4. The mineral deposits of the Lower Carboniferous sediments of Nova Scotia have been prolific contributors to the natural resource industry of the Province, with deposits along the Horton/Windsor contact being preeminent. A previous study of the past-producing barite and base metal deposit at Walton has confirmed the existence of important deposits of high grade silver. The proposed study, under provincial auspices, will document this deposit and attempt to develop models which will allow exploration for extensions of the Walton deposit and for new deposits along this contact.

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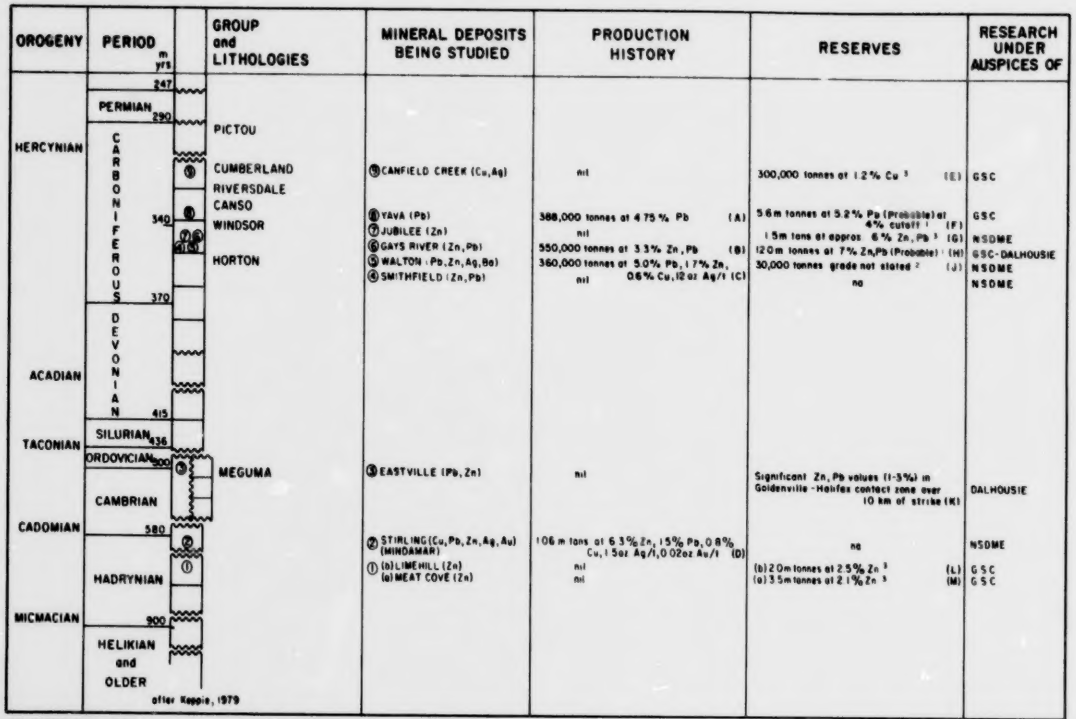
*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement



OROGENY	PERIOD (m yrs)		GROUP and LITHOLOGIES	MINERAL DEPOSITS BEING STUDIED	PRODUCTION HISTORY	RESERVES	RESEARCH UNDER AUSPICES OF
	247						
HERCYNIAN	PERMIAN 290		PICTOU				
	CARBONIFEROUS	⑨	CUMBERLAND	⑨ CANFIELD CREEK (Cu,Ag)	nil	300,000 tonnes at 1.2% Cu [3] (E)	GSC
			RIVERSDALE				
		⑧	CANSO	⑧ YAVA (Pb)	388,000 tonnes at 4.75% Pb (A)	5.6m tonnes at 5.2% Pb (Probable) at 4% cutoff [1] (F)	GSC
	340	⑦⑥	WINDSOR	⑦ JUBILEE (Zn)	nil	1.5m tons at approx. 6% Zn, Pb [3] (G)	NSDME
		④⑤		⑥ GAYS RIVER (Zn,Pb)	550,000 tonnes at 3.3% Zn, Pb (B)	12.0m tonnes at 7% Zn,Pb (Probable) [1] (H)	GSC-DALHOUSIE
			HORTON	⑤ WALTON (Pb,Zn,Ag,Ba)	360,000 tonnes at 5.0% Pb, 1.7% Zn, 0.6% Cu, 12 oz Ag/t (C)	30,000 tonnes grade not stated [2] (J)	NSDME
	370			④ SMITHFIELD (Zn,Pb)	nil	no	NSDME
ACADIAN	DEVONIAN 415						
TACONIAN	SILURIAN 436						
	ORDOVICIAN 500	③	MEGUMA	③ EASTVILLE (Pb, Zn)	nil	Significant Zn, Pb values (1-3%) in Goldenville-Halifax contact zone over 10 km of strike (K)	DALHOUSIE
	CAMBRIAN						
CADOMIAN	580	②		② STIRLING (Cu,Pb,Zn,Ag,Au) (MINDAMAR)	1.06 m tons at 6.3% Zn, 1.5% Pb, 0.8% Cu, 1.5oz Ag/t, 0.02oz Au/t (D)	no	NSDME
	HADRYNIAN	①		① (b) LIMEHILL (Zn)	nil	(b) 2.0m tonnes at 2.5% Zn [3] (L)	GSC
				(a) MEAT COVE (Zn)	nil	(a) 3.5m tonnes at 2.1% Zn [3] (M)	GSC
MICMACIAN	900						
	HELIKIAN and OLDER						

after Keppie, 1979

(A) NSDME Report 1982
(B) S.O. Akande, PhD 1982
(C) NSDME Min Eng Div. 1984
(D) C.K. Miller, MSc 1979
(E) Esso Minerals - Assessment Rept 1981
(F) NSDME Report 1982

(G) Industry Estimate
(H) S.O. Akande, PhD. 1982
(J) NSDME Min Eng Div 1984
(K) Binney et al 1985 (in press)
(L) Chatterjee 1977
(M) Chatterjee 1979

1 Preproduction
2 Remaining
3 Drill indicated

Figure 1. The general deposits identified for study.

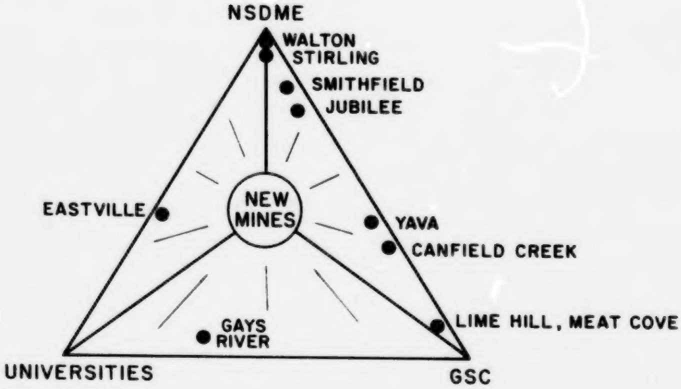


Figure 2. Deposits identified for study-interrelationships between participants.

As the carbonate-hosted Gays River deposit is being re-examined by industry with a view to production, the Dalhousie-GSC investigation of oxygen isotopes and their contribution to our understanding of the genesis of the mineral deposits in the Shubenacadie Basin is very timely. The carbonate-hosted lead-zinc deposit at Jubilee in Cape Breton is a significant prospect which will also benefit from study.

5. The Upper Carboniferous sandstone-hosted deposits have also contributed significantly to the economy of the Province. The sizeable, though low grade and monometallic, Yava deposit warrants further investigation since analogies with successful European deposits suggest the possible presence of commercial quantities of zinc.

The copper deposit at Canfield Creek in the Cumberland Basin demonstrates the wide geographic distribution of base metals in the Upper Carboniferous sandstones. The presence of copper at the Canfield Creek deposit and lead at the Yava deposit shows the potential for polymetallic deposits in this favourable environment.

In addition to the specific deposit studies, sediment-hosted deposits will be examined to investigate their relationship to the evolution and development of the sedimentary basins.

CANFIELD CREEK (Cu)

HISTORY

For many years widespread copper mineralization has been noted in the grey sandstones of the Pennsylvanian Pictou Group of the Cumberland Basin. Several occurrences produced small quantities of ore but generally no significant mineralization was found below a 30 to 40 ft depth in any of the deposits.

- 1955 Kennco Explorations (Canada) conducted geochemical, geophysical and diamond-drilling surveys; only minor values were returned and it was concluded that any mineralization present had a supergene origin and therefore very limited depth potential
- 1980 Esso Minerals Canada commenced a reconnaissance program to assess the copper potential of the Pictou Group Sandstones in the Cumberland Basin; diamond-drilling intersected significant copper values in grey sandstones at Canfield Creek

DIAMOND-DRILLING

In August 1980, DDH P1 intersected 8.1 metres at 0.58% Cu in grey sandstones at Canfield Creek. A follow-up grid program comprising 27 holes outlined 300,000 tons at 1.2% Cu plus minor silver values.

GEOLOGY

The Cumberland Basin is underlain by clastic sediments of the Upper Carboniferous Pictou Group. These redbed sandstones and mudstones are unconformably underlain by Cumberland and Riverdale Group redbed clastic units while the Lower Carboniferous Windsor Group is represented by carbonates, evaporites and shales.

The Claremont Anticline divides the Basin into the Pugwash and Tatamagouche sub-basins. Diapirs of the Windsor Group have locally pierced the Pictou Group clastics.

THE DEPOSIT

The copper deposit occurs within the basal two to eight metres of a grey sandstone unit of Late Carboniferous age. The mineralized horizon dips approximately 30° northeast off the flank of a Lower Carboniferous diapiric evaporite dome. The mineralization occurs in medium grained arkosic and crossbedded sandstones with dark finely laminated carbonaceous interbeds. Facies variation is more marked along strike than downdip. The best assay values are 3.12% Cu/1.2 m and 2.03% Cu/5.2 m.

MINERALIZATION

Chalcocite (Cu_2S) is present as nodules up to three cm in diameter and as wispy infillings along bedding planes. Very minor covellite (CuS) and chalcopyrite ($CuFeS_2$) occur in veinlets. Pyrite nodules occur at a stratigraphically higher level than the copper mineralization.

EXPLORATION POTENTIAL

Canfield Creek is significant as it demonstrates for the first time, that copper mineralization in the Cumberland Basin has some depth potential (with the deepest intersection at approximately 200 ft) and that significant deposits do occur in this environment.

SOURCE REFERENCE

O'Sullivan, J. R.
1981: Report on geological, geochemical, geophysical and diamond-drilling surveys on the Pugwash claim group; Esso Minerals Canada Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/13A 13-E-33(01).

GAYS RIVER (Pb, Zn,Ag)

HISTORY

1700s	French soldiers used lead from Gays River for ammunition
1952	first systematic exploration; 900,000 tons at 3% combined Pb-Zn
1972-1977	fence drilling over an area of 4 km by 0.6 km outlines "12 000 000 tonnes proven at grade of 7% combined Zn-Pb" (Akande, 1982)
1978	development and mining commences
Aug 1981	shutdown of mining operations
July 1985	formal option agreement signed by Seabright Resources Incorporated to purchase mine and mill
Nov 1, 1985	Seabright Resources Incorporated exercises option

PRODUCTION

1978-1981	550,000 tons of ore were milled at a head grade of 3.3% combined Zn-Pb

GEOLOGY

The orebody occurs within a sequence of dolomites and limestones of the Lower Carboniferous Windsor Group. The carbonates unconformably overlie a northeast trending anticline of the Goldenville Formation of the Meguma Group. Faulting of both north-south and east-west orientations reflect the fault systems in the basement Meguma Group.

OREBODY

MORPHOLOGY

Stratiform Ores (comprising 75% of the ore) occur as concordant masses of open-space fillings of ZnS and PbS (comprising 99.5% of sulphides present). The average grade is 5% combined Pb-Zn.

Vein Ores (25% of the ore) are discordant fault-controlled massive ZnS and PbS bodies distributed in a pattern of north-south, north-northeast and east-west orientations within the carbonate host. The average grade is 60% Zn and 10% Pb.

ORE MINERALOGY

The main ore minerals present in decreasing order of abundance are sphalerite (ZnS), galena (PbS) plus marcasite, and pyrite (FeS_2), and chalcopyrite ($CuFeS_2$).

GENESIS

The deposit is regarded by Akande (1982) as being of epigenetic origin and occurring as replacement and open space filling within the dolomitic reef.

SOURCE REFERENCE

Akande, S. O.
1982: Genesis of the lead-zinc mineralization at Gays River, Nova Scotia, Canada; a geologic, fluid inclusion and stable isotope study; unpublished Ph.D. Thesis, Dalhousie University, Halifax, Nova Scotia; Nova Scotia Department of Mines and Energy, Thesis 594.

WALTON (Ba, Cu, Pb, Zn, Ag)

HISTORY

1894	Fletcher mentions small barite outcrop, as shown on 1905 map
1940	barite outcrop brought to the attention of Springer Sturgeon Gold Mines by local prospector
1940-1941	extensive diamond-drilling outlines major barite deposit
1941	commencement of open-pit mining operations under Canadian Industrial Minerals Limited
1944	expansion following completion of new washing plant
1948	shaft sunk to 350 feet
1949	world events cause reduction in production
1955	Magnet Cove Barium Corporation, a subsidiary of Dresser Industries Incorporated, purchases the mine.
1956	new production shaft starts
1957	mining operations commence from underground; 50 foot crown pillar left in pit bottom; drilling discovers silver-rich massive sulphides
1960	barite production reduced
1963	shaft developed to 1,400 feet
1968	shaft deepened to 1,700 feet; barite and sulphide production from above 1030 level
1970	flooding problems
1977	crown pillar blasted from bottom of pit
Feb 1978	mine production ceases, and barite obtained from tailings pond and waste dumps
Oct 1978	all production ceases
July 1979	mining lease cancelled
Aug 1979	development licence issued to Dresser Minerals
Aug 1981	development licence cancelled
Mar 1982	claims open on maps

May 1982	claims staked by W. B. Dunlop, the current holder; Dresser Minerals retain ownership of the surface rights
June 1984	Dresser Minerals issued a special five year lease to recover barite from dumps and tailings

PRODUCTION

1941-1978	approximately five million short tons of $^{+}$90% $BaSO_4$ were mined
1961-1974	approximately 360,000 tonnes were milled at 5% Pb, 1.7% Zn, 0.7% Cu and 12 oz Ag/t, with the lowest production from the 1030 ft level

GEOLOGY

The Walton Mine is situated at the contact of the Horton and Windsor Groups where east-west and northwest trending faults cut the Macumber and Pembroke rocks of the Lower Carboniferous Windsor Group. The host Windsor Group rocks comprise limestones, limestone conglomerates, minor sandstone and shale, varying from 0 to 125 ft thick, and overlain by an evaporitic sequence. The Horton-Windsor contact is an important locus for mineral deposits throughout the Province.

OREBODY

MORPHOLOGY

The orebody comprises a pipe-like body of barite raking about 35° to the east. The lensoid deposit interdigitates on the upper and lower extensions with the enclosing sediments. The dip of the pipe steepens with depth, but there is a suggestion that below the 1650 level the dip may flatten.

The sulphide ore does not outcrop but tops out at the 250 level. The sulphides occur in the footwall and hanging wall of, and interfinger with, the barite body.

MINERALOGY

The principal hypogene minerals are barite ($BaSO_4$), siderite ($(FeMn)CO_3$), hematite (Fe_2O_3), manganese oxide, pyrite and marcasite (FeS_2), galena (PbS), sphalerite (Zn(FeCd)S), chalcopyrite ($CuFeS_2$), tennantite ($(Cu,Fe,Zn,Ag)_{12}As_4S_{13}$), proustite ($Ag_3AsS_3$), acanthite ($Ag_2S$); plus lesser bravoite $(Ni,Fe,Co)S_2$, stromeyerite (CuAgS), pearceite $(AgCu)_{32}As_4S_{22}$ and gersdorffite (NiAsS). The supergene minerals noted include limonite, goethite, pyrolusite, malachite, azurite and others.

Barite occurs in massive form and constitutes up to 25% of the sulphide zone.

GENESIS

Boyle (1972) concluded that the Walton area oxide, barite and sulphide deposits have an epigenetic origin and are of post-Carboniferous, or perhaps post-Triassic, age.

EXPLORATION POTENTIAL

At Walton, the lowest production was from the 1030 level. Development work was carried out on four further levels with the deepest at 1650 feet. Diamond-drilling from these levels showed the orebody continued below the 1650 level, and significant intersections of silver and base metals were encountered (Table 1).

Table 1. Silver and base metal concentrations from development levels

1200 Level			
	DDH 640	-	15.0 ft at 12 oz Ag/t
	DDH 645	-	5.4 ft at 9 oz Ag/t, 22.6% Zn
	DDH 646	-	13.0 ft at 10 oz Ag/t
1370 Level			
	DDH 624	-	7.5 ft at 191 oz Ag/t, 2.5% Cu
	DDH 623	-	5.0 ft at 90 oz Ag/t
	DDH 625	-	4.0 ft at 9 oz Ag/t
	DDH 628	-	7.5 ft at 4 oz Ag/t, 4.0% Pb
	DDH 630	-	4.0 ft at 39 oz Ag/t
1520 Level			
	DDH 656	-	13.0 ft @ 4 oz Ag/t, 2.3% Cu
		-	6.0 ft @ 18 oz Ag/t, 3.8% Zn
	DDH 650	-	7.0 ft @ 95 oz Ag/t, 1.4% Cu, 4.9% Pb, 2.3% Zn
	DDH 651	-	4.0 ft @ 10 oz Ag/t, 12.4% Pb
1650 Level			
	DDH 584	-	13.0 ft @ 3 oz Ag/t, 14.0% Pb
	589	-	6.0 ft @ 4 oz Ag/t, 2.0% Cu
	591	-	12.0 ft @ 7 oz Ag/t, 10.0% Pb, 5% Zn
		-	10.0 ft @ 80 oz Ag/t, 2.0% Pb, 2% Cu
		or	29.0 ft @ 31 oz Ag/t, 5.0% Pb

The demonstrated continuity of the ore structure and the presence of ore grade values, with significant precious metal content at the deepest levels of the mine, make the Walton deposit an attractive exploration target.

SOURCE REFERENCES

Nova Scotia Department of Mines and Energy

1959-1960: Assessment Files; Nova Scotia Department of Mines and Energy, Assessment Report 21H/01D 06-1-51(04).

1984: The Walton Mine - history and present status; Nova Scotia Department of Mines and Energy, Mining Engineering Division.

Boyle, R. W.
1972: The geology, geochemistry, and origin of the barite, manganese and lead-zinc-copper-silver deposits of the Walton-Cheverie area, Nova Scotia, Geological Survey of Canada, Bulletin 166, 181 p.

EASTVILLE (Zn,Pb)

HISTORY

1976	exploration for gold in the Meguma Group rocks by St. Joseph Explorations included a reconnaissance soil sampling program; samples being analysed for Au, Cu, Pb and Zn; high Pb values (in excess of 1000 ppm) were obtained from the first two lines sampled; follow-up soil geochemistry and EM surveys yielded coincident anomalies
1977	first diamond-drill hole had poor core recovery but chips recovered from a seven metre section assayed 3.3% combined Zn-Pb and fine grained sphalerite and galena were identified
1977-1982	twenty-eight drillholes were completed along 10 km of strike; most holes include 2 to 10 metre sections of 1 to 3% combined Zn-Pb at various stratigraphic positions with better grades in some holes (e.g. Hole 7 - 6.1 m of 3.34% combined Zn-Pb; Hole 28 - 9.33 m of 4.09% combined Zn-Pb)

GEOLOGY

Massive quartz metawacke and minor interbedded slate of the Goldenville Formation are overlain by slate, argillite, and interbedded quartz metawacke and metasiltstone of the Halifax Formation. These rocks are truncated along strike to the east by a Devono-Carboniferous granite-granodiorite intrusion.

The Eastville area is on the north limb of a large northeasterly trending syncline in the Meguma Group of Cambro-Ordovician age. Dip varies from 45° to vertical, and locally the rocks are overturned to the north. Faulting is present.

MINERALIZATION

Mineralization extends over a stratigraphic interval of 100 metres across the contact of the Goldenville and Halifax Formations. Host lithologies are quartz metawacke, calcareous quartz metawacke, fine laminated graphitic slate and black slate. The sulphides, in order of decreasing abundance are pyrrhotite, pyrite, sphalerite, galena, chalcopyrite and arsenopyrite.

Two main styles of mineralization have been recognized:

Stratabound mineralization occurs in all lithologies as small blebs, 1-2 mm thick by 2-5 mm long, elongated parallel to the bedding. Redistribution along the cleavage has occurred.

Fracture controlled mineralization occurs in networks of crosscutting veinlets, 0.1 to 1 mm thick, or with quartz in veins, 5 mm to 2 cm wide.

CLASSIFICATION

The deposit is classified as a distal type sediment-hosted stratiform lead-zinc deposit, with seafloor topography controlling the ultimate metal concentration.

EXPLORATION POTENTIAL

The Goldenville-Halifax transition zone is known to host significant quantities of Zn and Pb over a 10 km strike length. The possible Sedex (sedimentary exhalative) nature of the deposit warrants further exploration for ore grade concentrations along this contact.

SOURCE REFERENCE

W. P. Binney, K. A. Jenner, A. L. Sangster and M. Zentilli
in preparation: A stratabound zinc-lead deposit in Meguma Group metasediments at Eastville, Nova Scotia.

STIRLING-MINDAMAR MINE (Cu, Pb, Zn, Au, Ag)

HISTORY

1890s	mineralization discovered at Copper Brook
1904	small open-pit for copper
1915	complex Zn-Pb-Cu mineralization revealed in trenches
1915-1924	continued investigation of zinc potential by trenching and diamond-drilling
1925	two-compartment shaft to 400 feet and small amount of underground drifting
1927	shaft deepened to 630 feet plus development; 250 tpd mill installed
1930	mill capacity expanded to 300 tpd; 196,479 tons ore milled
1931-1935	mine closed due to low metal prices
1935-1938	resumption of operations; 3 400 metres of development and 8 200 metres of diamond-drilling
1938	operations suspended
1949	workings dewatered, and underground sampling and drilling programs completed
1951-1956	500 tpd mill installed; new four-compartment shaft sunk to 357 metres; 863,115 tons of ore milled
1956	operations suspended
1965-1982	various geophysical surveys and diamond-drilling programs
1982	property closed to staking
1983	tenders for work on property invited by Nova Scotia Department of Mines and Energy
Nov 1983	Order-in-Council licence granted to Douglas Hunter

PRODUCTION

1927-1931, 1935-1938	196,479 tons milled at head grade; 10% Zn, 2.3% Pb, 1% Cu, 2.5 oz Ag/t and 0.04 oz Au/t
1951-1956	863,115 tons milled at head grade; 5.5% Zn, 1.3% Pb and 0.7% Cu; 1.16 oz Ag/t and 0.016 oz Au/t calculated from published production figures

The total tonnage milled was 1,059,594 tons at an average head grade of 6.3% Zn, 1.5% Pb, 0.8% Cu, 1.5 oz Ag/t and 0.02 oz Au/t

GEOLOGY

The ore body is hosted within the volcanic-sedimentary Bourinot Group of probable Precambrian age (Keppie, 1979). The group comprises altered lavas and pyroclastics of basaltic to rhyolitic composition, chemical sediments, associated subvolcanic intrusions, together with thick successions of graded clastics of reworked volcanic debris.

Structural features trend northeasterly and the group has been regionally metamorphosed to lower greenschist facies.

ORE MINERALOGY

The ore mineralogy in decreasing order of abundance comprises pyrite, sphalerite, galena, chalcopyrite and tennantite.

GENESIS

The deposit is considered to be distal sedimentary-exhalative.

EXPLORATION POTENTIAL

The invocation of an sedimentary-exhalative model and the polymetallic nature and precious metal content of the ore, makes exploration for extensions and for new deposits attractive.

SOURCE REFERENCE

Keppie, J. D. (compiler)
1979: Geological map of the Province of Nova Scotia; Nova Scotia Department of Mines and Energy, scale 1:500 000.

Miller, C. K.
1979: The geologic setting and environment of ore deposition at the Mindamar Mine, Stirling, Richmond County, Nova Scotia; unpublished M.Sc. Thesis, Dalhousie University, Halifax, Nova Scotia; Nova Scotia Department of Mines and Energy, Thesis 257.

THE GEOLOGY OF THE SOUTH MOUNTAIN BATHOLITH: NTS SHEETS 11D/05 AND 11D/12*

M. A. MacDonald and R. J. Horne

This report summarizes the results of regional bedrock mapping of a portion of the South Mountain Batholith (SMB) which was conducted during the 1985 field season. NTS map sheets 11D/05 and 11D/12 were completed on a 1:50 000 scale. The purpose of the project is to assist in the evaluation of the mineral potential of the SMB with special emphasis on the exploration for new mineral occurrences in conjunction with geological mapping.

PREVIOUS WORK

The SMB within these map sheets has been previously mapped by Faribault (1908a, 1908b, 1908c, 1916), Cormier and Smith (1973), Smith (1974) and Dwyer (1976). Faribault mapped the granite/metasediment contact and concentrated primarily on the structure and stratigraphy of the metasedimentary rocks of the Meguma Group, paying little attention to the granitic rocks. Cormier, Smith and Dwyer conducted reconnaissance mapping and subdivided the granitic rocks into granodiorite, monzogranite (adamellite in their reports) and leucogranite (alaskite in their reports). The resulting subdivisions, along with all the aforementioned authors' granite/country rock contacts, are presented on the compilation map for Nova Scotia (Keppie, 1979).

Cormier and Smith (1973) and Smith (1974) concluded on the basis of field relationships, Rb-Sr age determinations and whole rock geochemistry that there were two episodes of granite emplacement. The older series (415 Ma) consisted of biotite granodiorite, quartz monzonite (monzogranite) and muscovite-biotite granite with graditional boundaries between these units. They concluded that this represented a cogenetic suite formed by fractionation of plagioclase and biotite. The alaskite dykes (350 Ma) display sharp discordant contacts with the older series and were interpreted as representing a separate intrusive event. Smith (1982) indicates that these age differences were erroneous and the two series are of equal age.

CLASSIFICATION SCHEME

Classification of the different granitic rock types is according to Streckheisen (1976) with two adopted modifications:

- The adjective leucocratic refers to rocks with two to five per cent total mafics (excluding muscovite) (e.g. leucocratic monzogranite, leucocratic porphyry).

- Leucogranite refers to a rock with less than two per cent total mafics (excluding muscovite). Grain sizes are defined as fine (<0.1 cm), medium (0.1-0.5 cm) and coarse (>0.5 cm). Large, euhedral feldspar crystals (mostly alkali feldspar) ranging from

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

2 to 10 cm in length are termed megacrysts. Porphyries in this report are defined as rocks with a predominantly fine grained, often saccharoidal, matrix with less than five per cent medium- to coarse-grained phenocrysts.

In addition to the relative proportions of quartz-alkali feldspar-plagioclase (QAP) (i.e. granodiorite, monzogranite, syenogranite) individual rock units are subdivided on the basis of colour, grain size, texture, and modal percentage (from visual modal estimates) of biotite, muscovite, cordierite and alkali feldspar megacrysts.

RESULTS OF MAPPING

Using the above classification scheme it is possible to further subdivide the previous authors' monzogranite-leucogranite units. Monzogranitic rocks (i.e. biotite granite and muscovite-biotite granite) are divided into four main units with four additional textural and compositional variations. Leucogranites (i.e. alaskites and aplitic alaskites) are divided into four units, three of which were grouped into one intrusive suite. Formal names are assigned to most of the units. A complete list of all rock units and their corresponding map symbols is as follows: biotite granodiorite (DCgda); Sandy Lake monzogranite (DCmgSL); Peggys Cove monzogranite (DCmgP); Halifax Peninsula monzogranite (DCmgHX) and subunit (DCmgHXa); Harrietsfield monzogranite (DCmgHF) which has three subunits (DCmgHFa, DCmgHFb, DCmgHFc); Tantallon Intrusive Suite (TIS) which is comprised of three separate units (DCmgTa, DCmgTb, DCmgTc); porphyry (DCmgp) and mafic porphyry (DCmgmp). The distibution of these fourteen map units is displayed in Figure 1. A general discription and list of distinguishing characteristics for each of these units is presented in Table 1.

The excellent bedrock exposure, primarily in the southern and eastern sections of the field area (Finck and Graves, this volume) has provided a number of exposed field relationships. Table 2 is a summary of all defined (i.e. exposed) and inferred granite/granite and granite/metasediment contact information. Information pertaining to igneous and metasedimentary xenoliths found within individual units is also given and when possible, a location is presented where the above features may be observed.

Quartz-alkali feldspar-plagioclase (QAP) values from modal analyses of twenty-one stained slabs from a representative suite of samples are presented in Figure 2a. Approximately 400 points were counted for each sample. With the exception of two samples all rocks fall into their predicted fields (i.e granodiorite and monzogranite). These exceptions include a sample of the Sandy Lake monzogranite which plots in the granodiorite field and a sample of megacrystic porphyry from the Tantallon Intrusive Suite which plots in the syenogranite field. The sample of Sandy Lake monzogranite indicates transitional nature of this unit with the granodiorite phase. The porphyry sample represents a unit of extremely limited areal extent and is syenogranitic because of a local concentration of alkali feldspar megacrysts. A plot of alkali feldspar versus plagioclase for averaged modal values from representative samples of the eight main rock units is presented in Figure 2b. A trend of progressively increasing alkali feldspar and decreasing plagioclase is clearly defined for the sequence biotite granodiorite - Sandy Lake monzogranite - Peggys

Cove monzogranite - Harrietsfield monzogranite - Halifax Peninsula monzogranite - Tantallon Intrusive Suite. This presumably corresponds to a progressive degree of differentiation with the Tantallon suite representing the most highly evolved material.

Previous mapping (Cormier and Smith, 1973; Smith, 1974) defined a wide band of granodiorite (up to 6 km wide) adjacent to the granite/metasediment contact and connecting with the granodiorite of NTS map sheet 11D/13 (Corey, this volume) and the remainder of the SMB. Based on present field mapping, distribution of the granodiorite is essentially restricted to a narrow (0.5-2.0 km wide) marginal phase (DCgda), along the granite/metasediment contact from the Northwest Arm of Halifax Harbour to within 0.5 km of NTS map sheet 11D/13.

The granodiorite is characteristically medium grey to bluish grey, predominantly medium grained, equigranular to slightly megacrystic with abundant metasedmentary xenoliths and aplite dykes. In several locations, aplite forms closely spaced sheeted sets which subparallel the granite/metasediment contact and dip toward the granite.

The Sandy Lake monzogranite (DCmgSL) which is in gradational contact with the granodiorite is very difficult to distinguish from the latter without systematic staining with sodium cobaltinitrite. The gradational contact zone is approximately <30 to >200 metres wide and is most easily recognized by a slight increase in alkali feldspar megacrysts from <5 to >10 per cent and a corresponding decrease in biotite from approximately 12-15 per cent to 10-12 per cent. This transitional boundary between DCgda and DCmgSL is in agreement with the findings of Cormier and Smith (1973) and Smith (1974). In contrast, the sharp inferred contacts between DCmgHX and DCmgSL (with xenoliths of DCmgSL in DCmgHX) and DCmgHX and DCgda indicate that not all units have gradational contacts.

VARIABILITY IN ROCK TYPES

It is evident from this study that the coarser grained, more mafic units are generally more homogeneous than the finer grained two-mica units with respect to texture and modal contents of biotite, muscovite, cordierite and alkali feldspar megacrysts. The map units displaying the least variability are the biotite granodiorite (DCgda), Peggys Cove monzogranite (DCmgP), Sandy Lake monzogranite (DCmgSL) and Harrietsfield monzogranite (DCmgHF). The Halifax Peninsula monzogranite (DCmgHX) is the most heterogeneous of the coarse grained monzogranite. It contains highly variable amounts of muscovite, cordierite and alkali feldspar megacrysts and has approximately half the biotite content of the other coarse grained units.

The fine- to medium-grained, two-mica monzogranite (rare syenogranite) which comprises the Tantallon Intrusive Suite (DCmgTa,b,c) and porphyries (DCmgp) displays the widest range of textures and mineralogy (Table 1). Observed crosscutting field relationships (Table 2), the presence of accessory minerals such as andalusite, garnet, cordierite, tourmaline and fluorite, the low biotite and high muscovite content, the position on the QAP diagram and the presence of common hydrothermal alteration suggest that these are the late staged rocks in the field area. The high volatile

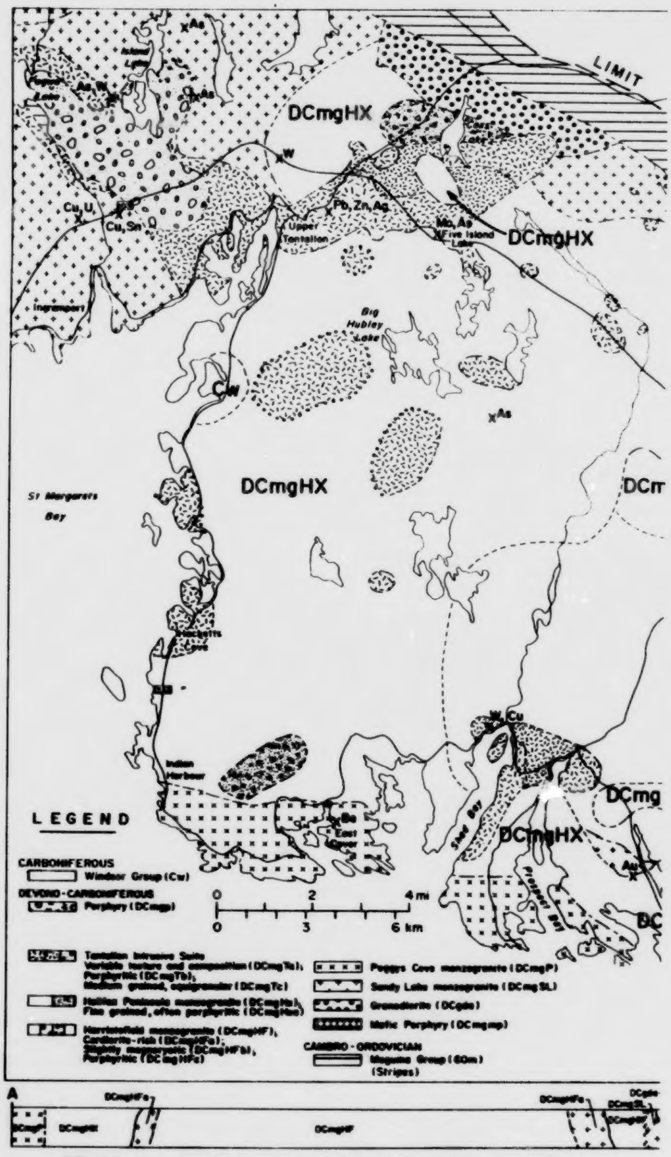
LIMIT
DCmgHX
DCmgHX
DCmgHX
DCmgHX
DCmg
DCm
DC
As
As, W
As
W
Cu, U
Cu, Sn
Pb, Zn, Ag
Mo, As
Five Island Lake
Upper Tantallon
Ingramport
Big Hubley Lake
Cw
As
St Margarets Bay
Indian Harbour
W, Cu
Ba
East Dover
Sand Bay
Prospect Bay
Au
LEGEND
CARBONIFEROUS
Windsor Group (Cw)
DEVONO - CARBONIFEROUS
Porphyry (DCmgp)
0 2 4 mi
0 3 6 km
Tantallon Intrusive Suite
Variable texture and composition (DCmgTa),
Porphyritic (DCmgTb),
Medium grained, equigranular (DCmgTc)
Halifax Peninsula monzogranite (DCmgHa),
Fine grained, often porphyritic (DCmgHaa)
Harrietsfield monzogranite (DCmgHF),
Cordierite-rich (DCmgHFa),
Slightly megacrystic (DCmgHFb),
Porphyritic (DCmgHFc)
Peggys Cove monzogranite (DCmgP)
Sandy Lake monzogranite (DCmgSL)
Granodiorite (DCgdo)
Mafic Porphyry (DCmgmp)
CAMBRO - ORDOVICIAN
Meguma Group (€Om)
(Stripes)
A
DCmgHFa
DCmgP
DCmgHX
DCmgHF
DCmgHFa
DCgdo
DCmgSL
DCmgHF

Figure 1. Geology of map sheets 11D/05 and 11D/12.

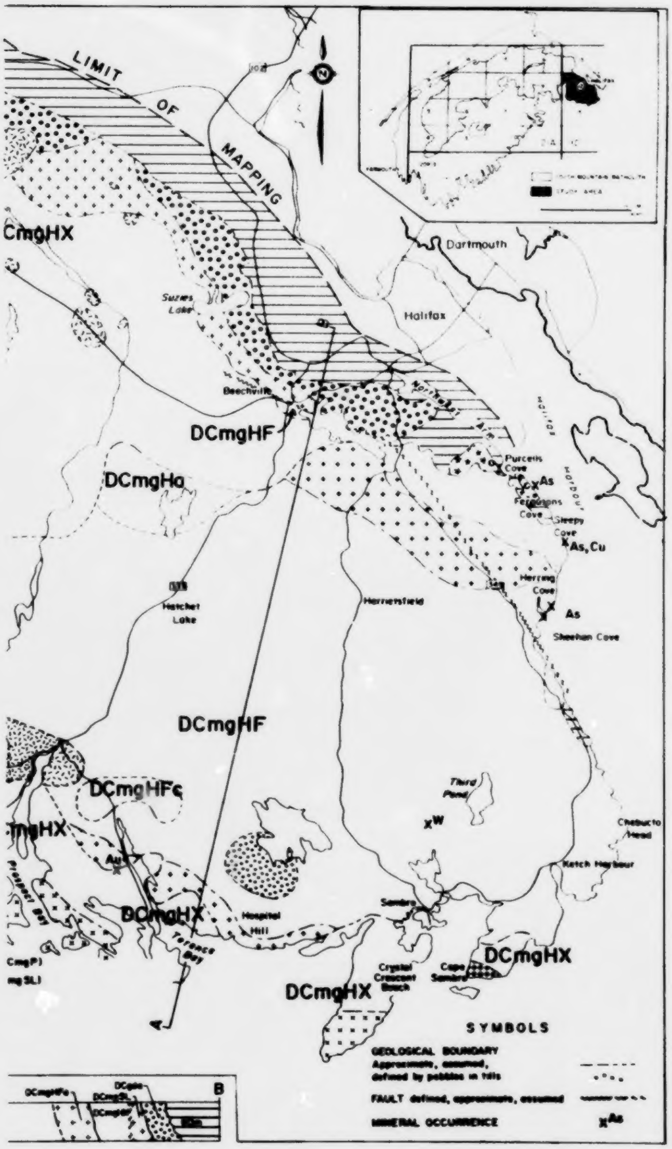
LIMIT OF MAPPING
CmgHX
Suzies Lake
Dartmouth
Halifax
Beechville
DCmgHF
DCmgHo
Purcells Cove
As
Fergusons Cove
Sleepy Cove
As, Cu
Herring Cove
As
Sheehan Cove
Harrietsfield
Hatchet Lake
DCmgHF
DCmgHFc
CmgHX
Au
DCmgHX
Hospital Hill
Terence Bay
Prospect Bay
CmgPJ
mgSLI
Third Pond
W
Chebucto Head
Ketch Harbour
Sambro
Crystal Crescent Beach
Cape Sambro
DCmgHX
DCmgHX
A
B
SYMBOLS
GEOLOGICAL BOUNDARY
Approximate, assumed, defined by pebbles in tills
FAULT defined, approximate, assumed
MINERAL OCCURRENCE
As

Figure 1. Continued.

Table 1. Description of granite rock types (NTS Map Sheets 11D/05 and 11D/12).

Unit	Description							Distinguishing Characteristics
	General			Mineralogy (Visual Modal Estimates)				
	Colour	Grain Size	Texture	Biotite	Muscovite	Cordierite	K-feldspar Megacrysts	
(DCgda) biotite granodiorite	medium grey to bluish grey	predominantly medium; coarse in part	equigranular	12 - 15%	trace	trace	<5%; often <2%	high biotite content; low content of alkali feldspar megacrysts; equigranular; occurs near granite/metasediment contact
(DCmgSL) Sandy Lake monzogranite	light to medium grey	medium to coarse	hypidiomorphic granular; inequigranular	<8 - 12%	trace - 0.5%	trace - 0.5%	10 - 15%	high biotite content (although variable); low muscovite and cordierite contents; may resemble (DCgda)
(DCmgHF) Harrietsfield monzogranite	light to medium grey	fine to coarse	hypidiomorphic granular (granitic); inequigranular	7 - 8%	trace - 1%	generally variable; <1 - 1.5%	10 - >15%	bimodal grain size for biotite with most <1 mm and some up to 4 mm; overall fine to coarse grain size; alkali feldspar megacrysts often occur in pods (≥ 30% of rock volume)
(DCmgHFa)						>1 - 3%		same as (DCmgHF) except with abundant cordierite
(DCmgHFb)							5 - 7%	same as (DCmgHF) except with less percentage of alkali feldspar megacrysts
(DCmgHFc)		fine to medium	porphyritic to hypidiomorphic granular				5 - 10%	compositionally similar to DCmgHF except with less percentage alkali feldspar megacrysts; finer grained; may have porphyry texture
(DCmgHX) Halifax peninsula monzogranite	light to whitish grey; pinkish - orangish grey	medium to predominantly coarse	hypidiomorphic granular; inequigranular	<4 - 6%	trace - >2%	trace - >4%	<5 - >50%	variable in texture and composition; characterized by low percentage of biotite and often containing substantial cordierite (1-3%); coarser grained than all other units
(DCmgHXa)		medium	hypidiomorphic granular to porphyritic	4 - 7%	1 - 2%	<1 - 3%	3 - 5%	similar to DCmgHX except a lower percentage of alkali feldspar megacrysts and finer grained; porphyry texture
(DCmgP) Peggys Cove monzogranite	light to medium grey	medium to coarse	hypidiomorphic granular; inequigranular	8 - 12%	trace - 0.5%	trace - 1%	10 - 15%	similar to DCmgSL; may be coarser grained and contain more cordierite near contact with (DCmgHX)
Tantallon intrusive suite								
(DCmgTa)	light to medium buff-orange; pale to dark red; light to medium whitish grey	fine to medium	variable: aplitic; (saccharoidal) porphyritic; equigranular	trace - 6%	1 - >4%	trace	0 - >5%	highly variable with respect to grain size, texture and composition; all are fine- to medium-grained and muscovite-bearing
(DCmgTb)	medium bluish grey	predominantly medium; some coarse alkali feldspar phenocrysts	porphyritic	5%	1 - 2%	2%		bluish grey colour; porphyritic texture; phenocrysts of quartz, alkali feldspar, plagioclase and cordierite
(DCmgTc)	light buff-brown	predominantly medium; fine in part	equigranular	3 - 4%	3 - 4%	trace	trace	massive; equigranular; medium grained; muscovite - rich
(DCmgp) porphyry	whitish grey to light buff-brown	fine to medium; minor coarse grained phenocrysts	porphyritic	2 - 5%	2 - <5%	trace	0 - 5%	variable composition and grain size; consistently porphyritic
(DCmgmp) mafic porphyry	medium to dark brownish grey	fine to medium; minor coarse grained phenocrysts	porphyritic	variable 15%	trace	trace	10%	dark colour; high biotite content; porphyritic texture; alkali feldspar megacrysts; low muscovite content

Table 2. Contact Relationships for map sheets 11D/05 and 11D/12.

Map Units*	**Contact Relationship**	
Meguma Group/Granitoid	**Type**	**Details**
Meguma Group/granodiorite (DCgda)	intrusive**	exposed in quarry near Susies Lake
Meguma Group/Sandy Lake monzogranite (DCmgSL)	intrusive**	inferred from abrupt lithology change
Meguma Group/Harrietsfield monzogranite (DCmgHF)	intrusive**	inferred from abrupt lithology change
Meguma Group/Halifax Peninsula monzogranite (DCmgHX)	intrusive**	exposed south of Sleepy Cove
Meguma Group/porphyry (DCmgp) (near Halifax)	intrusive**	inferred from abrupt lithology change
Granitoid/Granitoid		
granodiorite(DCgda)/Sandy Lake monzogranite (DCmgSL)	gradational	exposed section near Susies Lake.
granodiorite(DCgda)/Halifax Peninsula monzogranite (DCmgHX)	intrusive	inferred from abrupt lithology change and chilled? porphyritic marginal zone (DCmgHX) near Cox Lake
granodiorite(DCgda)/Tantallon intrusive suite (DCmgTa)	intrusive	inferred (DCmgT intruded DCmgHX which intruded DCgda)
Sandy Lake monzogranite(DCmgSL)/Halifax Peninsula monzogranite (DCmgHX)	intrusive/fault	inferred from sharp lithology change (fault contact near Long Lake)***
Sandy Lake monzogranite(DCmgSL)/Tantallon intrusive suite (DCmgTa,b,c)	intrusive	inferred from abrupt lithology change
Harrietsfield monzogranite(DCmgHFa)/Halifax Peninsula monzogranite (DCmgHX)	intrusive/fault	exposed in Halibut Bay (near Herring Cove); xenoliths of (DCmgHF)? in DCmgHX near Crystal Cresent Beach and fault contact in Sheehans Cove
Harrietsfield monzogranite(DCmgHF)/Tantallon intrusive suite (DCmgTa,b)	intrusive	poor control on contact, inferred from reasonably abrupt lithology change near Shad Bay
Harrietsfield monzogranite(DCmgHF)/(DCmgHFa)	gradational (textural and compositional equivalent)	exposed sections with increasing cordierite approaching contact with (DCmgHX)
Harrietsfield monzogranite(DCmgHF)/(DCmgHFb)	sharp contact (textural equivalent)	exposed near Hospital Hill; reasonably sharp but undulatory contact
Harrietsfield monzogranite(DCmgHF)/(DCmgHFc)	intrusive	similar looking dykes of porphyry near Terence Bay Road (compositionaly similar, texturally different)
Halifax Peninsula monzogranite(DCmgHX)/Peggys Cove monzogranite (DCmgP)	gradational	exposed section near Crystal Cresent Beach
Halifax Peninsula monzogranite(DCmgHX)/Tantallon intrusive suite (DCmgTa,b)	intrusive	exposed near Five Island Lake (Highway 103) and near exit 5, Tantallon (DCmgTb)
Halifax Peninsula monzogranite(DCmgHX)/porphyry(DCmgp) (near Fergusons Cove)	intrusive	exposed near Ocean View Drive, Purcells Cove: no obvious chilling of either unit but one xenolith of (DCmgHX)? in porphyry
Halifax Peninsula monzogranite(DCmgHX)/mafic porphyry(DCmgmp) (near Sambro)	intrusive	exposed at Cape Sambro: also xenoliths of porphyry in (DCmgHX)
Halifax Peninsula monzogranite(DCmgHX)/(DCmgHXa)	gradational?/intrusive?	appears to be textural variation of (DCmgHX)
Tantallon intrusive suite (DCmgTb)/(DCmgTa)	intrusive	from abrupt lithology change had large compositional variation
Tantallon intrusive suite (DCmgTa)/(DCmgTc)	gradational	inferred from outcrops in the Ingram River-Island Lake area where (DCmgTa) appears to be a marginal phase to (DCmgTc)
Sandy Lake monzogranite(DCmgSL)/porphyry (DCmgp) near Bates Lake	intrusive	inferred from abrupt lithology change
Granitoid/Carboniferous	depositional	inferred, poor outcrop control

*oldest unit, when known, on left
**xenoliths of Meguma Group present
***xenoliths of Sandy Lake in Halifax along Highway 103

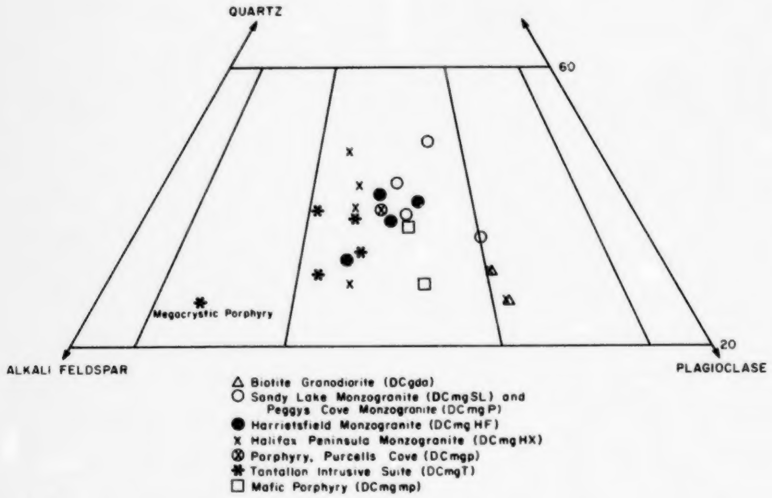

Figure 2a. Quartz - alkali feldspar - plagioclase (QAP) modal values of representative samples from the major rock types.

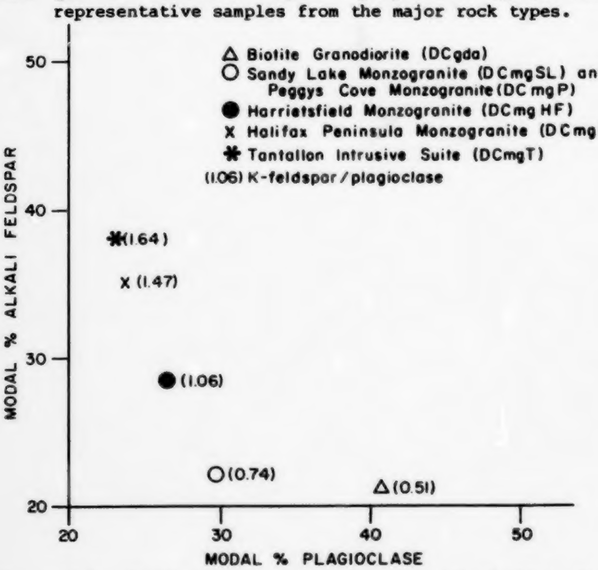

Figure 2b. Modal alkali feldspar versus modal plagioclase from averaged values for the main units. Note the progressive increase in modal alkali feldspar/plagioclase from granodiorite - Sandy Lake - Peggys Cove - Harrietsfield - Halifax - Tantallon units. Numbers in brackets indicate ratio of modal alkali feldspar to plagioclase.

content generally ascribed to these rocks has a pronounced effect on such parameters as crystal nucleation, crystal growth and viscosity (Hyndman, 1972). This would explain the textural and possibly mineralogical complexities in these rock types.

MINERALOGY

All units contain quartz, alkali feldspar and plagioclase, and all contain biotite or chlorite pseudomorphs after biotite except for a few extremely leucocratic rocks of minimal areal extent.

Cordierite, mostly replaced by pseudomorphs of chlorite-muscovite-pinite, is a major constituent (trace - >4%) in both the Halifax Peninsula monzogranite (DCmgHX) and the marginal phase of the Harrietsfield monzogranite (DCmgHFa). Trace to minor amounts (generally <1%) of cordierite have been noted in all other monzogranites and a few grains were noted in samples of the granodiorite. Also, large euhedral crystals up to 10 cm long have been noted in the cores of some pegmatitic dykes.

Muscovite may be present in trace amounts in the biotite granodiorite and is present in variable modal abundances (trace - <5%) in all monzogranites. Muscovite is generally most abundant in the fine- to medium-grained, two-mica phases (1-5%) although it may be present in substantial quantities (up to $\geq$2%) in the medium- to coarse-grained Halifax Peninsula monzogranite (DCmgHX). Except for a few, euhedral, primary-looking crystals (generally in the more leucocratic rocks) most muscovite is an alteration product of alkali feldspar, plagioclase, biotite, cordierite and andalusite.

Accessory minerals include apatite, zircon, rutile and ilmenite, all of which occur primarily as poikilitic inclusions in biotite, and andalusite and garnet.

Other minerals which are generally restricted to quartz veins, greisens and hydrothermally altered fracture zones include fluorite, calcite and tourmaline.

CORDIERITE ABUNDANCE AND DISTRIBUTION

The presence of cordierite as a major and minor rock-forming mineral in peraluminous (i.e. $Al_2O_3/(CaO + K_2O + Na_2O) > 1$) granitic rocks has been well documented (Clarke, 1981). In the peraluminous granitic rocks of the Meguma Zone, cordierite has been reported as a major constituent (up to >5%) in both the Musquodoboit Batholith (MB) (Jones and MacMichael, 1975; MacDonald and Clarke, 1985) and the Ellison Lake Pluton (EL) (Allen and Barr, 1983). Dwyer (1976), Abbott and Clarke (1979), and Maillet and Clarke (1985) noted several occurrences of cordierite in the SMB. However, prior to the current mapping, no estimate of the relative abundance and distribution of cordierite in the SMB was available.

The Halifax Peninsula monzogranite (DCmgHX) which occupies a major portion of map sheets 11D/05 and 11D/12 consistently contains significant yet varying modal abundances of cordierite (trace - >4%). Similar amounts of cordierite are present in DCmgHFa, a marginal phase of the Harrietsfield monzogranite that is locally developed along the contact with DCmgHX

(Fig. 1). Cordierite is present both as fine- to medium- grained, anhedral, interstitial crystals and as medium- to coarse-grained (up to 2.0 cm long) euhedral crystals. Most crystals are either extensively altered to, or pseudomorphed by pinite ± muscovite ± chlorite. Alteration commences along discrete crystallographic directions (010 plane) and gives the characteristic parting which is clearly visible in hand specimen. Cordierite tends to be fresher in DCmgHFa than in DCmgHX where only a few fresh cores are observed.

On map sheet 21A/16 to the northwest of the study area, cordierite is a major constituent (1-3%) in the Halifax Peninsula monzogranite (DCmgHX) and is present in trace to minor amounts in other units (Ham and Horne, this volume). Cordierite is present in minor amounts in both the fine- to medium-grained and medium- to coarse-grained monzogranites on map sheet 11D/13 to the north. Maximum modal percentages of two per cent may be observed in both the microgranite and coarser grained monzogranite phases of the Big Indian polyphase intrusion, DCmgBI (Corey, this volume).

It is now apparent that the Musquodoboit Batholith and Ellison Lake Pluton are not unique in their abundance of cordierite and that at least some of the monzogranites of the eastern SMB are similar in this respect.

GEOGRAPHIC DISTRIBUTION-A ZONED PLUTON?

An interesting aspect of the geology of map sheets 11D/05 and 11D/12 is the zonal arrangement of the lithologic units which is evident in the A-B cross-section (Fig. 1). Smith (1974) also suggested that "the older biotite bearing series outcrops in a zoned pluton". Other than the following deviations, a relatively complete and symmetrical sequence is present:

- The Halifax Peninsula monzogranite (DCmgHX) is bordered by two separate units, the Peggys Cove (DCmgP) and Sandy Lake (DCmgSL) monzogranites. These are the two most mafic (i.e. biotite-rich) monzogranite units in the map area and, although mapped as separate units, may be lateral equivalents. This is supported by the similar texture, overall mineralogy and similar QAP composition of the two map units.

- The Halifax Peninsula/Sandy Lake monzogranite contact is inferred to be sharp and intrusive (Table 2) although it is in fault contact in the vicinity of the cross-section. This relationship differs from the gradational Peggys Cove/Halifax Peninsula monzogranite contact to the south.

- Granodiorite is not present in the southern part of the study area. However, some samples of the Peggys Cove monzogranite approach granodioritic composition. It is possible that granodioritic rocks may exist seaward of the present day coastline thus completing the zonation of the pluton.

Another observed large-scale feature is the overall distribution of monzogranite rocks underlying the main part of the Halifax Peninsula. Prior to the current work the entire area was mapped as biotite granite (monzogranite) with two areas of muscovite-biotite granite (monzogranite) near Indian Harbour and Herring Cove (Smith, 1974). The eastern part of the peninsula is now recognized as being dominated by the fine- to coarse-grained, biotite monzogranite (DCmgHf) whereas the western half is predominantly medium- to coarse-grained, biotite-cordierite-muscovite monzogranite (DCmgHX) (Fig. 1).

This major east-west lithologic division is reinforced by the airborne radiometric data (Geological Survey of Canada, 1979). The western half of the peninsula is characteristically enriched in radiometric K, equivalent U, equivalent U/K, equivalent U/equivalent Th (eU/eTh) and depleted in equivalent Th compared to the eastern part of the map. An eU/eTh ratio map (Fig. 3) demonstrates this strongly bimodal radiometric response.

Comparing the geology map (Fig. 1) to this ratio plot (Fig. 3) it is evident that some of the high eU/eTh areas (>1.0) reflect the geometry of fine- to medium-grained two-mica monzogranites of the Tantallon Intrusive Suite. However, the majority of these areas of elevated radiometric response correspond to the Halifax Peninsula monzogranite.

If indeed the Halifax Peninsula represents a zoned pluton with the most primitive material (i.e. biotite granodiorite and biotite monzogranite) near the margins, the Harrietsfield monzogranite deviates from the trend of increasingly evolved core material. The Harrietsfield monzogranite contains approximately double the mafic content (Table 2), plots more towards the QP zone on the QAP diagram (Fig. 2a) and has a lower alkali feldspar/plagioclase ratio (Fig. 2b) when compared to the Halifax Peninsula monzogranite. Equivalent Th values in the Harrietsfield monzogranite (>4 ppm) are substantially higher than the Halifax Peninsula monzogranite and approach values for the granodiorite, also suggesting a relatively "primitive" nature as outlined by Chatterjee and Muecke (1982).

Possible explanations for this deviation include:

- The Harrietsfield monzogranite actually represents a separate pluton which postdates and intrudes the existing zonally arranged granitic assemblage.

- The Harrietsfield monzogranite represents a separate pluton which pre-dates and was intruded by the remainder of the granite rocks. In this scenario the cordierite-rich phase (DCmgHFa) can be explained by contamination from the contact metamorphic aureole.

- The Harrietsfield monzogranite is simply co-magmatic with the other units and represents an early phase which coincidentally occupies the central part of a zoned pluton.

It is virtually impossible to resolve this matter without detailed petrographic and geochemical data. However, if the biotite monzogranite xenoliths which are present in DCmgHx near Crystal Crescent Beach belong to DCmgHf, the second explanation is most likely.

MINERALIZATION

Several new mineral occurrences (As-Cu, W, W-Cu-F, As-W, Cu-Sn) were noted during bedrock mapping. A location and brief description for each are presented in the following sections.

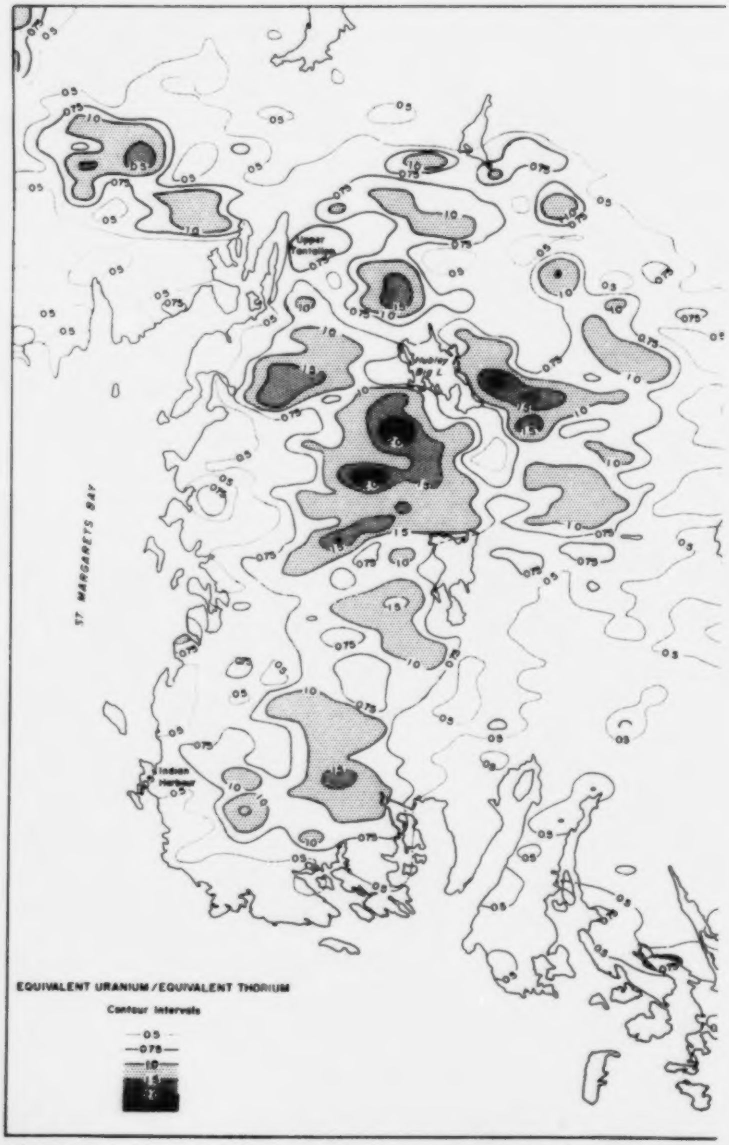
ST MARGARETS BAY
Upper Tantallon
Hubley Big L.
Indian Harbour
EQUIVALENT URANIUM/EQUIVALENT THORIUM
Contour Intervals
0.5
0.75
1.0
1.5
2

Figure 3. Contoured plot of equivalent uranium/equivalent thorium eU/eTh for map sheets 11D/05 and 11D/12. Note the high response in the western half of the map sheets corresponding to the Halifax Peninsula monzogranite and the Tantallon intrusive suite.

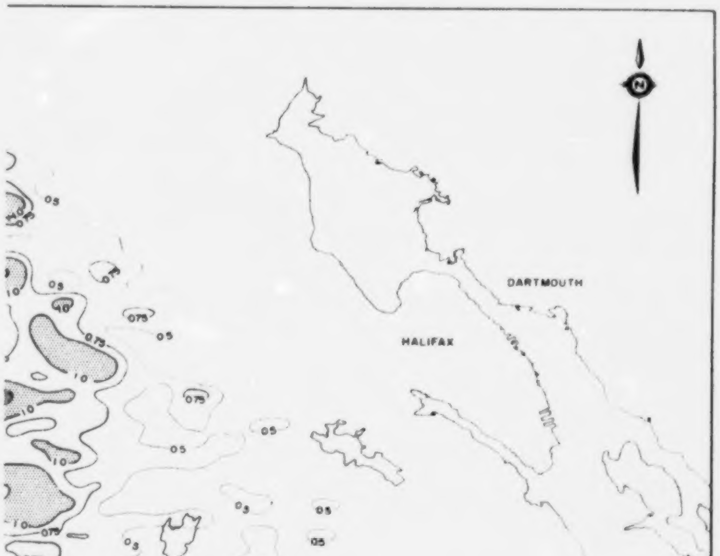
DARTMOUTH
HALIFAX
Sambro
N
05
075
10
0
2
4 mi
0
3
6 km

Figure 3. Continued.

SANDWICH POINT

Near the mouth of Halifax Harbour, coarse disseminations of arsenopyrite, pyrite and rarely chalcopyrite occur in a sheeted greisen bordered quartz vein system within the Halifax Peninsula monzogranite near its contact with metasedimentary rocks of the Meguma Group (location and tour of complex provided by T. E. Smith). The greisen system outcrops over a strike length of approximately 500 m along the shoreline and is exposed for approximately 300 m of strike width. Veins have two dominant orientations, 005/63W and 175/70W and vary in width from <5 to 50 cm. Similar trending, less extensively developed, quartz-arsenopyrite-tourmaline greisen bordered veins outcrop near Herring Cove.

Preliminary semiquantitative analysis of arsenopyrite-rich samples from quartz veins contain up to 525 ppb Au (corresponding to 6.80% As), 80 ppm W, 63 ppm Sn and 72 ppm Bi. There is moderate positive correlation of Bi and Ag with Au.

Elsewhere the presence of the Halifax Peninsula monzogranite appears to be a common denominator for the occurrence of elevated Au values in lake sediments (Rogers et al., 1985) suggesting a genetic link between the two. Conversely, the distribution of mud-rich, Meguma Group and foreign clast dominated tills (Finck and Graves, this volume) shows no correlation to these elevated Au values, ruling out a down-ice dispersion of Meguma Group hosted gold.

THIRD POND

North of Sambro three parallel greisen bordered quartz veins (approximately 0.5-1.5 cm wide) cut the Harrietsfield monzogranite over an exposed strike width of one metre. Two of the veins (128/78N) contain coarse disseminations (0.50-0.75 cm) of wolframite. Minor greisenization is present along a few 137/86W trending joints.

This occurrence is not spatially associated with exposed specialized two-mica monzogranite rocks. However, the presence of a large tungsten anomaly in lake sediments (10.9 ppm, Rogers et al., 1985) approximately two kilometres to the east coupled with this new mineral showing suggests that this area may be favourable for tungsten exploration.

SHAD BAY

In a gravel pit near the head of Shad Bay, wolframite-chalcopyrite and chalcopyrite-malachite-bornite-fluorite occur in association with pegmatitic pods (10-100 cm) in a quartz-feldspar-cordierite porphyry (DCmgTc). Tungsten and copper mineralization postdates pegmatite emplacement, however, it appears to be related to late pegmatitic fluids. Sericite greisenization is common along the dominant joint set (140/90) reaching widths of 15 cm.

TANTALLON

Along Highway 103 west of Tantallon there is a series of parallel quartz veins (137/90) with associated greisenization which are hosted by pervasively hematized monzogranite, approximately 1.5 km northeast of the Tantallon Intrusive Suite. Veins are generally one to three cm wide, spaced one metre apart and contain abundant pyrite. One vein contained coarse pods of wolframite of up to five cm diameter.

ISLAND LAKE

A sequence of subparallel, northwest-trending (146/90) quartz-arsenopyrite veins (<1-2 cm) with trace pyrite has been found in the Tantallon Intrusive Suite (DCmgTc) near Island lake. Some veins approach 80 to 90 per cent arsenopyrite and one sample contains minor scheelite. Other occurrences of similar northwest trending quartz arsenopyrite veins occur in the Sandy Lake monzogranite near Sandy Lake. In the Halifax Peninsula monzogranite southwest of Hubley Big Lake, one narrow quartz with minor arsenopyrite vein was located.

INGRAMPORT

Along Highway 103 north of Ingramport there are two locations with 150/80W and 145/76E trending quartz greisens (up to 18 cm wide) which contain finely disseminated pyrite, chalcopyrite, cassiterite, bornite and malachite. The vein to the east of the river, analysed by Esso Resources (MacLeod, 1983) contained 0.28% Sn, 0.37% Cu and 0.30% Zn.

Prior to the current work there were three previously documented occurrences in the study area. These included galena- and pyrite-bearing heavy mineral contents in silt samples near Upper Tantallon, beryl-bearing pegmatites near East Dover and quartz veins near Terence Bay which were prospected for gold (NSDME mineral occurrences 11D/12-6, 11D/05-2 and 11D/05-1 respectively). Field work revealed no observed mineralization for the later two occurrences.

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BEDROCK GEOLOGY OF THE SOUTH MOUNTAIN BATHOLITH: NTS MAP SHEET 11D/13*

M. C. Corey

INTRODUCTION

Bedrock mapping of the granitoid rocks NTS map sheet 11D/13 of the South Mountain Batholith (SMB) was initiated in May 1985. Previously published geology maps of the area consist of a 1 in = 1 mi map by Faribault (1916) and a regional 1:500 000 compilation map by Keppie (1979). Faribault emphasised the structure and stratigraphy of the Meguma Group and differentiated between the granitoid rocks on the basis of mica content. Keppie shows the map area to be entirely underlain by biotite granodiorite. However, recent mapping (Fig. 1) indicates the presence of more evolved granitic rocks, ranging in composition from biotite monzogranites to two-mica monzogranites and highly differentiated leucomonzogranites and syenogranites (Fig. 2). It is important to note that the systematic staining of rock samples using sodium cobaltinitrate is critical in distinguishing the various granite lithologies.

The following unit descriptions begin with what is assumed to be the least differentiated phase and concludes with the most differentiated phase (Table 1).

UNIT DESCRIPTIONS

BIOTITE GRANODIORITE(DCgd)

This unit is a medium- to coarse-grained, alkali feldspar, megacrystic (5-10%), biotite (15-20%) granodiorite. It is generally homogenous with the exception of a medium grained equigranular marginal phase (DCgda) exposed south of Mount Uniacke along Highway 101. This marginal phase is characterized by abundant blue quartz and metasedimentary (Meguma Group) xenoliths of variable size and degree of assimilation (Jamieson, 1974). The unit is confined to a large embayment in the granite metasdimentary contact area. Away from the contact the granodiorite becomes increasingly coarser grained and megacrystic, implying that the marginal phase represents a chilled portion of the main body. The occurrence of abundant Meguma Group xenoliths throughout the granodiorite indicates that the level of erosion is very near the roof of the intrusion in this area. Varying degrees of hematization, kaolinization, saussuritization and chloritization were observed in this unit.

SANDY LAKE MONZOGRANITE(DCmgSL)

This medium- to coarse-grained, alkali feldspar megacrystic (approximately 15%), biotite (10%) + muscovite (trace) + cordierite (trace-1%) monzogranite is confined to the lower third of the map sheet. In comparison with the granodiorite, the unit contains considerably

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

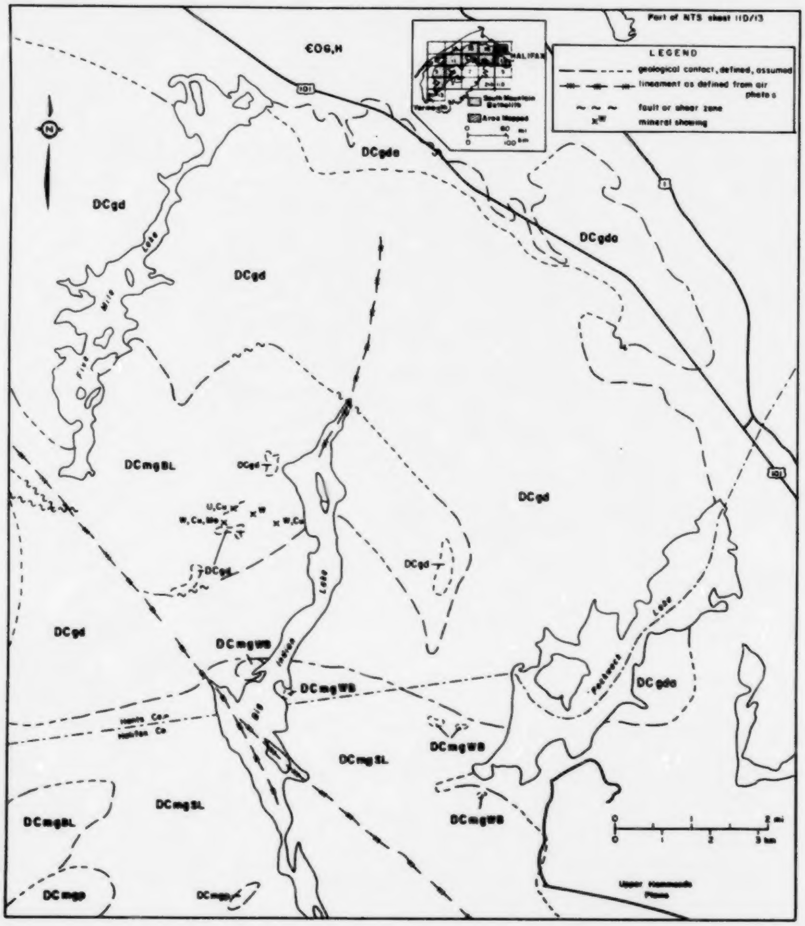
Part of NTS sheet 11D/13
LEGEND
geological contact, defined, assumed
lineament as defined from air photos
fault or shear zone
mineral showing
HALIFAX
South Mountain Batholith
Area Mapped
Yarmouth
0 60 mi
0 100 km
€OG,H
101
1
DCgda
DCgd
Five Mile Lake
DCmgBL
U,Cu
W,Cu,Mo
W,Cu
W
Big Indian Lake
Pockwock Lake
DCmgWB
DCmgSL
DCmgp
Hants Co.
Halifax Co.
0 1 2 mi
0 1 2 3 km
Upper Hammonds Plains

Figure 1: General geology of NTS map sheet 11D/13.

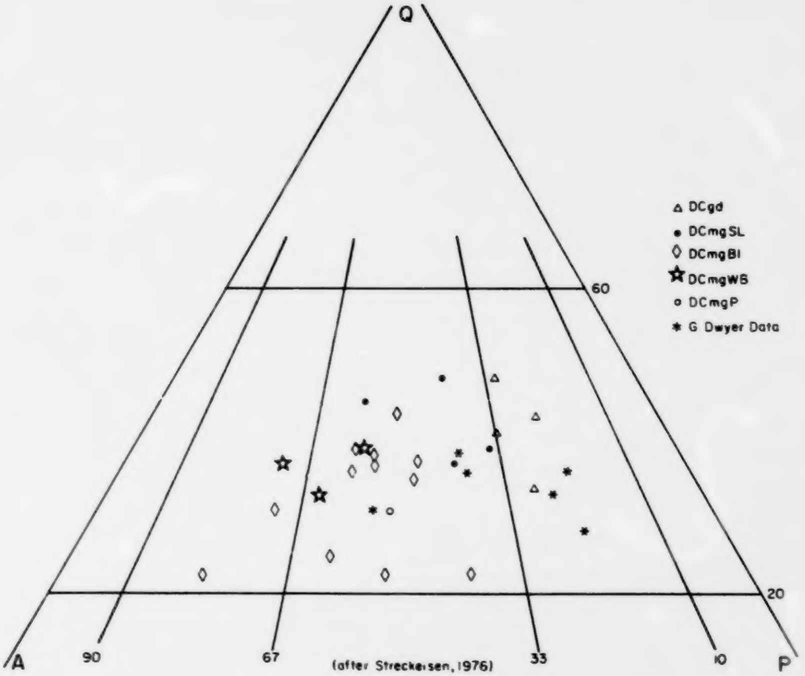

Figure 2: Modal plots of granite rock types in study area.

less metasedimentary (Meguma Group) xenoliths which are smaller and display almost complete assimilation. The high abundance of megacrysts, the low abundance of muscovite and light green quartz are diagnostic features of this unit. The unit is predominantly homogenous with the exception of a medium grained, equigranular, biotite-rich (12.5%) marginal phase (DCmgSLa) exposed along the east side of Pockwock Lake.

Alteration types observed are hematization, sericitization and chloritization. The cordierite is invariably altered to pinite and may resemble chloritized biotite. Well developed pseudo-rapakivi textures within the main body (DCmgSL) indicate possible late stage magmatic albitization.

Contacts with the granodiorite are gradational. Transition zones up to one kilometre wide are observed at Big Indian Lake. An increase in the modal percentage of biotite and plagioclase feldspar is characteristic of these transitional rocks. Extensive cobaltinitrate staining is required to define the exact contact.

Table 1: Petrographic description of the Big Indian polyphase intrusion.

Unit	Description						
Big Indian Lake Polyphase Intrusion	**General**			**Mineralogy (Visual Modal Estimates)**			
	Colour	**Grain Size**	**Texture**	**Biot**	**Musc**	**Cord**	**Kf-mg**
porphyry	buff to light grey	fine to medium with coarse grained phenocrysts	porphyritic	3 - 10%	trace - 1%	0	0
microgranite	buff to white	very fine grained	saccharoidal	≤5%	trace - 1%	1%	0
fine- to medium-grained monzogranite	buff to orange, brown	fine to medium	equigranular - seriate	3 - 6%	1 - 4%	trace - 1%	0
coarse grained monzogranite	medium grey, buff	coarse	seriate hypidiomorphic granular	4 - 8%	trace - 3%	trace - 2%	<2%

Abbreviations: biot = biotite; musc = muscovite; cord = cordierite; kf-mg = K-feldspar megacrysts

BATES LAKE MONZOGRANITE (DCmgBL)

This homogenous, light grey-pink, fine grained, biotite (2-6%) + muscovite (1%) monzogranite is well exposed on Bates Lake in the southwest corner of the map sheet. It displays moderate to locally intense hematization. A strong (1.1) U/Th airborne anomoly (Geological Survey of Canada, 1976) coincides with this unit. A sharp intrusive contact with the Sandy Lake monzogranite is exposed on the powerline east of Two Mile Lake. The fine grained equigranular texture of this unit suggests a high level of emplacement.

PORPHYRIES (DCmgp)

This monzogranite unit has a fine- to medium-grained groundmass with medium- to coarse-grained phenocrysts of alkali feldspar and quartz with local development of one centimetre flakes of biotite. The unit contains one to three per cent of both biotite and muscovite, with trace amounts of cordierite (leucocratic porphyry <5.0% biotite). An extensively hematized and saussuritized porphyry, with numerous northwest trending quartz veins, is exposed immediately east of Bates Lake. The porphyry contains an approximately one square metre, light green, quartz-muscovite, greisen pod with a well developed quartz stockwork. Small greisen boulders display coarse disseminations of chalcopyrite + arsenopyrite + pyrite in quartz stringers. MacDonald and Horne (1985, this volume) report narrow arsenopyrite-rich quartz veins having the same orientation in a similar porphyry unit to the south on map sheet 11D/12. Contacts with Sandy Lake monzogranite are sharp and intrusive as observed on the Bowater lumber road west of Rafter Lake whereas in the vicinity of Bates Lake the porphyry is in gradational contact with the Bates Lake monzogranite.

WALSH BROOK LEUCOMONZOGRANITE (DCmgWB)

This unit consists of a buff to pink, fine- to medium-grained, equigranular, muscovite (2.5-4.0%) + biotite (<2.0%) monzogranite to syenogranite. This trend to a more alkali-rich composition appears to be a result of late stage metasomatism as indicated by a pervasive pink colouration of the syenogranite. This unit displays intense northeast fracturing with local shearing. Exposures of this unit range in size from approximately one hundred square metres down to one metre wide dykes, and it is possible that all exposures of this unit may in fact be dykes which have intruded along zones of structural weakness in the roof of the Sandy Lake monzogranite. A sharp intrusive contact with DCgd is exposed in a quarry northeast of Walsh Brook.

BIG INDIAN POLYPHASE INTRUSION (BIPI)-(DCmgBI)

This unit is located entirely within the biotite granodiorite, and has been tentatively divided into four highly aluminous and differentiated phases. They are mineralogically similar but texturally variable (Fig. 3). A description of each phase follows:

1. Undivided medium- to predominately coarse-grained biotite (4.5-7.0%) ± muscovite (trace-2.0%) ± cordierite (trace-2.0%) ± garnet monzogranite.

Textures within this phase vary from equigranular to seriate to slightly (<5.0%) megacrystic. This phase may be further subdivided with detailed bedrock mapping.

2. Quartz-feldspar ± biotite ± garnet porphyry. Typically, the unit has a fine- to medium-grained groundmass and medium- to coarse-grained phenocrysts of plagioclase, quartz, biotite and garnet. The biotite content varies from 2.5 to 8.5 per cent. Garnet occurs as <1.0 cm, rounded, reddish brown, crystal aggregates. The garnet occurs at the expense of biotite (i.e. the 8.5% biotite porphyry contains no garnets) indicating alumina metasomatism (Kontak and Corey, in press). Muscovite occurs as fine grained flakes in the groundmass and content varies from trace to 1.5 per cent.

3. Fine- to medium-grained, equigranular, biotite (4.5-6.0%) + muscovite (<3.0%) ± cordierite (1.0%) + garnet (1-3.0%) monzogranite. The garnets are texturally similar to those in the porphyry phase.

4. Very fine grained, saccharodial, leucocratic, biotite (<3.0%) + muscovite (trace-2.5%) + cordierite (1-2.5%) + garnet microgranite. Colour is white or, when altered, orange-brown. Composition varies from syenogranite (>66% alkali feldspar) to monzogranite. The phase contains abundant spherical garnet crystal aggregates, similar to those in phase 2, which in some instances occur in thin (<1.0cm wide) alkali feldspar-rich veins. The cordierite occurs as minute (<3mm) pinitized crystals which can be mistaken for chloritized biotite flakes.

The above phases display intimate spatial relationships and sharp irregular contacts. Pegmatitic pods and dykes are seen associated with all phases and commonly contain tourmaline. Garnets are the most reliable field criteria for distinguishing rocks of the BIPI. The numerous granodiorite roof pendants containing abundant Meguma Group xenoliths of large dimension and low degree of assimilation, suggest that the BIPI is a high level intrusion. Alteration within the BIPI includes albitization, hematization, tourmalinization, chloritization, biotitization, greisenization and potassium-feldspathization.

Intense shearing is observed both within the BIPI and at the contacts with the granodiorite. The abrupt termination of the BIPI along a major northwest lineament south of Five Mile Lake, and the occurrence of 'polyphase' type rocks in map area 21A/16 (Ham and Horne, this volume) spatially related to an east-west fault (exposed in 11D/13 and 21A/16 map sheets) suggest displacement along one or both structural features.

The available airborne radiometric data (Geological Survey of Canada, 1976) shows no correlation with the different phases of the BIPI. The strongest U/Th anomaly (0.75) is located south of Island Lake. A significant uranium showing approximately 500 metres north of Christie Lake was not defined by the survey.

MINERAL OCCURRENCES

Numerous mineral occurrences are found throughout this map sheet, consisting principally of previously documented, fracture related, interbatho-

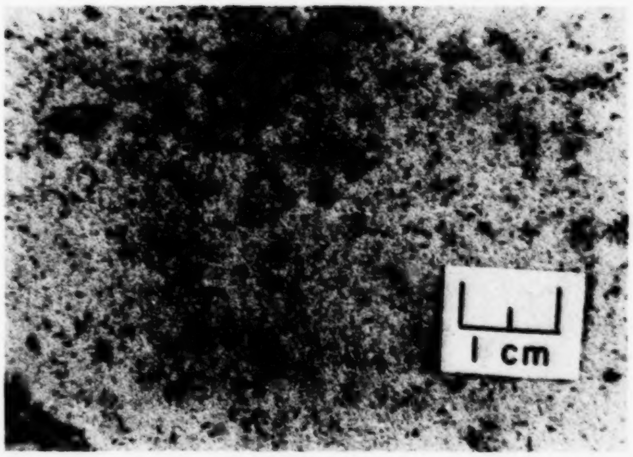

Figure 3a: Micrograinite from BIPI complex; garnets in top left corner of photo.

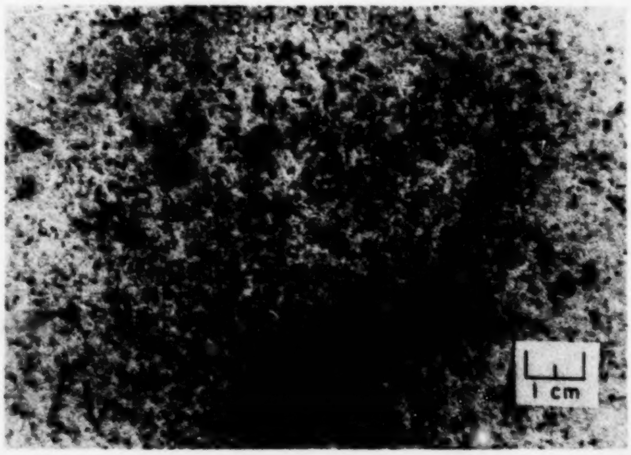

Figure 3b: Fine- to medium-grained monzogranite from the BIPI complex; numerous garnets are scattered throughout groundmass.

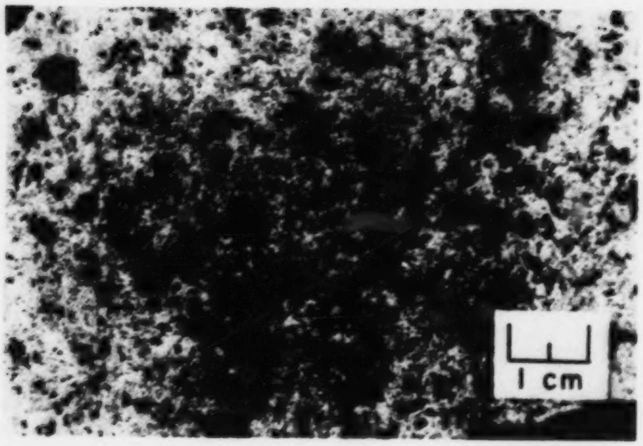

Figure 3c: Porphyry unit from the BIPI complex, the immediate area surrounding the garnets are devoid of biotite.

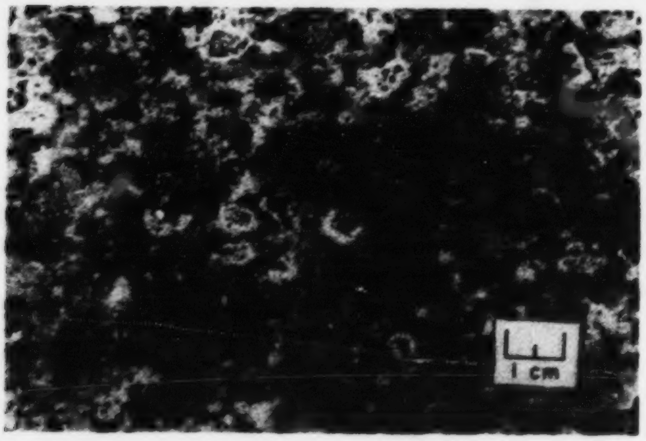

Figure 3d: Coarse grained, equigranular, biotite monzogranite from the BIPI complex, this unit varies texturally. This sample contains no garnet although it has been observed in this phase.

lithic and peribatholithic occurrences of uranium phosphates. Several new mineral showings were discovered in the course of bedrock mapping by the Nova Scotia Department of Mines and Energy. The most significant of these occur within the BIPI complex and are described in the following sections.

CHRISTIE LAKE W-Cu-Mo SHOWING(S)

This occurrence is exposed west of Christie Lake beside the Bowater Lumber road. Mineralization consisting of coarse wolframite crystals (1-7 cm length) with disseminated scheelite, chalcopyrite and very minor molybdenite, is confined to approximately north-south trending, steeply dipping (72° east), en echelon quartz veins hosted by the microgranite phase. The veins vary in width from 2-10 cm and are exposed along strike for approximately 5 m. Preliminary studies indicate an increase in the modal percentage of aluminous minerals (cordierite and muscovite) from approximately 1.0 to 2.5 per cent and a decrease in alkali feldspar from 78 to 53 per cent of total feldspar in the microgranite adjacent to the mineralized quartz veins. These features are attributed to local greisenization and albitization, and could explain the aforementioned syenogranite to monzogranite trend.

Eight hundred metres to the east, a large microgranite boulder was found with large (10 cm) wolframite crystals imbedded in a 6 cm wide quartz vein. No sulphides were observed, making detection of mineralized (tungsten) veins very difficult (i.e. rusty quartz veins). The immediate area contains abundant microgranite outcrop with numerous north-south trending quartz veins and associated dark grey-green chloritic greisen veins. The greisen veins vary from 4-10 cm in width and contain minor finely disseminated tourmaline.

A further 200 m east along the lumber road, a microgranite outcrop contains a 1-2 cm wide north-south trending quartz vein containing finely disseminated wolframite and chalcopyrite. Small (<10 cm^2) pyritic greisen pods also occur in the microgranite.

M.E.X. U-Cu SHOWING

This occurrence was discovered in 1979 by the Maritime Exploration Syndicate (M.E.X.). It is exposed in a quarry approximately 500 m north of the Christie Lake showing. It consists of finely disseminated torbernite, autunite, chalcopyrite and pyrite within an extensively hematized northeast trending shear zone. Mineralization is best observed along the shear zone within an intensely kaolinized and hematized biotite-rich (20%) granodiorite roof pendant. The presence of abundant fresh biotite flakes in an altered and friable rock indicates extensive potassium metasomatism of probable hydrothermal origin.

Rock types within the quarry encompass all phases of the BIPI complex. They exhibit extensive alteration and intense alumina metasomatism as reflected by the presence of andalusite, sillimanite, cordierite, garnet, muscovite, biotite and tourmaline in the surrounding rocks. A sample of altered monzogranite (greisen) displays approximately 25 per cent fresh, colourless to pink, andalusite crystals (<1-2.5 cm long) associated with muscovite, garnet and pyrite (5%). The andalusite appears zoned (white rims-pink cores) with strong colourless to dark pink-violet pleochroism, which indicates a high iron content (Deer et al., 1966). Abundant acicular sillimanite crystals and minor dissiminated fluorite were also observed.

DISCUSSION

The occurrence of polyphase intrusive rocks within the South Mountain Batholith constitutes a unique and potentially important exploration target for polymetallic W-Cu-Mo-Sn(?) and U mineralization. Similar polyphase intrusions have been well documented in the Hercynian granites of Europe by a number of authors (Tischendorf, 1978) as important hosts for Sn-W and rare element mineralization.

Field observations within the BIPI indicate that the textural variations may be due to the intrusion of a volatile-rich, peraluminous melt through a hydraulically fractured granodiorite carapace. In this scenario the coarse grained slightly megacrystic rocks would be the first to cool. Later, magma injections would chill against the previous injection to produce the increasingly finer grained textures observed. The latter injections would also be more differentiated and volatile-rich (B and F) due to extended fractionation and fluid melt interaction. The effectiveness of fluorine and boron in concentrating alumina in the refractory phases of a granitic melt has been documented by Manning and Pichavant (1984) and Hemley et al. (1980).

The occurrence of aluminosilicates has been documented from several locations within the South Mountain Batholith. Clarke et al. (1976) report magmatic andalusite occurring as small, (<1 mm) interstitial grains surrounded by muscovite in late stage granitic rocks. Chatterjee et al. (1981) report andalusite associated with uranium phosphate mineralization in a fine grained leucomonzogranite dyke rock at Millet Brook. The andalusite and sillimanite found north of Christie Lake associated with late stage hydrothermal activity are the first of hydrothermal origin in the South Mountain Batholith to be reported. The presence of sillimanite indicates a minimum temperature of at least 500° C (@P=3.8kb.) for the hydrothermal fluids (Holdaway, 1971). The close spatial relationship of the andalusite and sillimanite with highly differentiated rocks that host significant mineralization has a special interest and will be studied further. The restriction of the mineralization to the microgranite phase suggests that the potential may exist for a porphyry style W-Cu-Mo-Sn(?) deposit.

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GEOLOGY OF THE SOUTH MOUNTAIN BATHOLITH ON THE EASTERN HALF OF NTS MAP SHEET 21A/16*

L. J. Ham and R. J. Horne

INTRODUCTION

During the 1985 field season, the eastern portion of NTS map sheet 21A/16 was mapped at the 1:50 000 scale as part of an overall project to map the South Mountain Batholith (SMB) and to assess the economic potential of the body. Due to limited time and access during these previous studies, much of the map sheet was subdivided only on a reconnaissance level.

Portions of the study area have been previously mapped by Faribault (1916, 1931), Wright (1931), McKenzie (1974) and Dwyer (1976). Faribault and Wright divided the granitic rocks of the western portion of the map sheet into biotite granite and muscovite granite. McKenzie concentrated on the area west of Highway 14, the westernmost edge of current mapping, and noted four different rock types along Highway 14, namely (i) porphyry (ii) medium grained monzogranite (adamellite of MacKenzie, 1974) (iii) porphyritic monzogranite (adamellite of MacKenzie, 1974) and (iv) granodiorite. Dwyer separated the granitic rocks of the eastern portion of the map sheet into three categories, namely (i) biotite granodiorite (ii) monzogranite (adamellite of Dwyer, 1976) and (iii) late staged intrusive rocks (aplites, pegmatites, porphyries, leucogranites). Recent mapping and compilation work by Ferguson (1985) concentrated on the northern portion of the batholith, and the Horton and Windsor Groups north of the granites.

RESULTS OF FIELD MAPPING

The geology of the study area (Fig. 1) is based on field mapping by the authors during the 1985 field season. The map legend is tabulated in Table 1 with accompanying descriptions in subsequent sections. Contact relationships between the various rock units are documented in Table 2 and modal analyses results of individual units are displayed in Figure 2.

Several textural varieties of biotite granodiorite underlie most of the northern portion of the study area, while the southern portion is dominated by textural and mineralogical variations in monzogranite. The varieties of monzogranite include biotite monzogranite, biotite-cordierite monzogranite and two-mica monzogranite. Identification of the different granitic types in the field is based on the visual percentage estimate of biotite and muscovite, presence or absence of cordierite, and visible textural differences. Terminology of the granites is based on the Streickeisen (1976) classification. Percentages of minerals included in the rock unit descriptions are modal analyses results based on point counting.

GNEISSIC ROCK OF UNKNOWN AGE

Three small inliers of greyish brown to black gneissic rocks (GN) occur within the granitic rocks on the western side of Panuke Lake. These

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

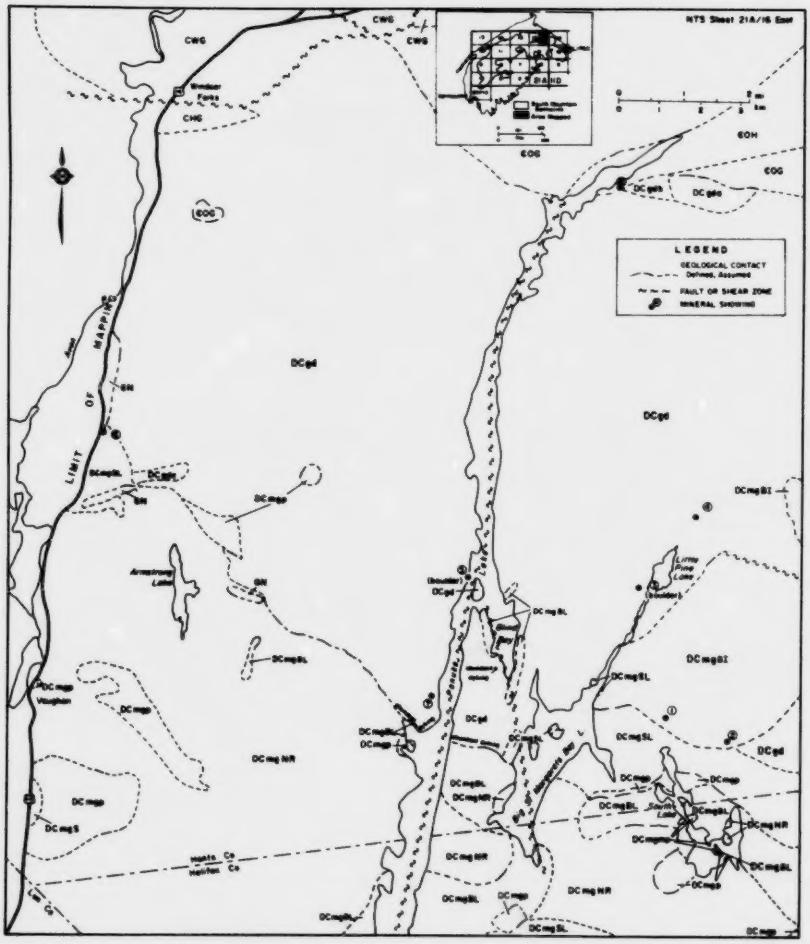
NTS Sheet 21A/16 East
CWG
CWG
CWG
CHG
Windsor Forks
21A/16
South Mountain Batholith
Area Mapped
0 1 2 mi
0 1 2 3 km
EOH
EOG
EOG
EOG
DCgdb
DCgda
LEGEND
GEOLOGICAL CONTACT
Defined, Assumed
FAULT OR SHEAR ZONE
MINERAL SHOWING
LIMIT OF MAPPING
DCgd
DCgd
GN
GN
GN
DCmgBL
DCmgp
DCmgBI
Armstrong Lake
(boulder)
DCgd
DCmgBL
Little Pine Lake
(boulder)
DCmgBL
DCmgBI
DCmgSL
DCmgp
Vaughan
DCmgp
DCmgBL
DCmgp
DCmgNR
DCgd
DCmgSL
DCmgSL
DCgd
DCmgp
DCmgp
DCmgBL
DCmgNR
DCmgBL
South Lake
DCmgBL
DCmgNR
DCmgp
DCmgS
Hants Co
Halifax Co
DCmgNR
DCmgNR
DCmgNR
DCmgBL
DCmgp
DCmgBL
DCmgp
DCmgBL
DCmgp
DCmgBL

Figure 1. Geological map of map sheet 21A/16 East.

Table 1. Description of granite rock types on map sheet 21A/16 East.

Unit	Description							Distinguishing Characteristics
	General			Mineralogy (Visual Modal Estimates)				
	Colour	Grain Size	Texture	Biotite	Muscovite	Cordierite	K-feldspar Megacrysts	
(hCgd) biotite granodiorite	medium grey	medium to coarse	hypidiomorphic granular	13 - 15%	0	0	5 - 10%	high biotite content; abundant xenoliths; common aplites and pegmatites
(hCgda)	medium grey to bluish grey	predominantly medium, coarse in part	equigranular	12 - 15%	trace	0	<5%; often <2%	high biotite content; low alkali feldspar megacrysts; equigranular; occurs near granite/metasediment contact
(hCgdb)	medium grey	fine	equigranular to slightly porphyritic	12 - 15%	0	0	0	fine grained; high biotite content
(hCgdc)	dark grey	medium to coarse	hypidiomorphic granular to slightly porphyritic	15 - 20%	0	0	0 - 5%	high biotite content; quartz quite dark giving rock overall dark grey colour; xenoliths common
(hCmgSL) Sandy Lake monzogranite	light to medium grey	medium to coarse	hypidiomorphic granular inequigranular	<8 - 12%	trace - 0.5%	trace - 0.5%	10 - 15%	high biotite (although variable) content; low muscovite and cordierite content
(hCmgNR) New Ross monzogranite	light to whitish grey, pinkish - orangish grey to orange	predominantly medium to coarse	hypidiomorphic granular inequigranular	<4 - 6% (minor 7 - 8%)	trace - 2%	trace - 4%	<5 - >50%	variable in texture and grain size; characterized by low biotite content and often substantial cordierite (1-3%) and muscovite (2-3%) some fine grained, porphyritic and pegmatitic variations, often at contact areas with other units
(hCmgDL) Dukes Lake monzogranite	light grey buff to dark red	predominantly fine, minor medium	equigranular	4 - 7%	trace - 1%	trace	0	predominantly light grey, fine grained, equigranular; minor medium grained; locally moderate to intensely hematized
(hCqpp) porphyry	whitish grey to light buff-brown	fine to medium, minor coarse grained phenocrysts	porphyritic	2 - 5%	2 - <5%	0	0 - 5%	variable composition and grain size; consistently porphyritic
(hCmpp) mafic porphyry	medium to dark brownish grey	fine to medium, minor coarse grained phenocrysts	porphyritic	variable 15 - 18%	trace	0	2 - 3%	dark colour; high biotite content; porphyritic texture; alkali feldspar megacrysts
(hCmgBI) Big Indian Polyphase Intrusion Comprised of: coarse grained, garnetiferous monzogranite	medium grey, buff	medium to coarse	seriate to hypidiomorphic granular	5 - 8%	trace - 3%	trace - 2%	>2%	predominantly garnetiferous monzogranite; mineralogically similar but texturally variable phases, intimately associated and form sharp but irregular contacts; presence of garnets; coarse grained, slightly megacrystic biotite granodiorite roof pendants of variable size within polyphase; minor xenoliths of Sandy Lake monzogranite
microgranite	buff to white	very fine grained	saccharoidal	≥5%	trace - <3%	1%	0	
quartz-feldspar porphyry	buff to orange, brown	fine to medium groundmass; medium to coarse phenocrysts	porphyritc	3 - 6%	trace - 2%	trace - 1%	0	

Table 2. Contact relationships between granite/metasedimentary rocks and granite/granite rocks on map sheet 21A/16 East.

Contact Relationships 21A/16*	Contact Type	Details
gneissic rocks/granodiorite	intrusive?	xenoliths of gneissic rocks in granodiorite; abrupt lithology change near Vaughan
gneissic rocks/New Ross monzogranite	intrusive?	abundant xenoliths of gneissic rocks in monzogranite near contact; exposed Armstrong Lake area
Meguma Group/Carboniferous	depositional/unconformity	inferred; evident from previous mapping (Ferguson, 1985)
Meguma Group/biotite granodiorite	intrusive	abrupt lithology change; traceable within 100 metres; xenoliths of Meguma Group rocks present
granodiorite/Sandy Lake monzogranite	intrusive	sharp intrusive contacts observed north shore of Big St. Margarets Bay Lake
granodiorite/New Ross monzogranite	intrusive	inferred from lithologic changes in Armstrong Lake area and west side of Panuke Lake
granodiorite/Bates Lake monzogranite	sharp intrusive	exposed on Blind Bay; extensive dyking of Bates Lake into granodiorite in contact area
granodiorite/porphyry	intrusive	sharp lithologic change northeast of Armstrong Lake
granodiorite/Big Indian polyphase intrusive	intrusive/faulted	exposed as sharp lithologic contact on power line northeast of Big St. Margarets Bay Lake; faulted inferred from observed fault on map sheet 11D/13
Sandy Lake monzogranite/ New Ross monzogranite	intrusive	inferred from lithologic changes; poor control on contact on east side of Panuke Lake
Sandy Lake monzogranite/Bates Lake monzogranite	intrusive	exposed west side of Big St. Margarets Bay Lake
Sandy Lake monzogranite/porphyry	intrusive	sharp lithologic change at South Lake
Sandy Lake monzogranite/Big Indian polyphase intrusion	intrusive	very sharp lithologic change
Sherwood monzogranite/New Ross monzogranite	intrusive	inferred from lithologic change along Highway 14
Sherwood monzogranite/porphyry	intrusive	lithologic change along Highway 14
New Ross monzogranite/ Bates Lake monzogranite	intrusive	exposed west side of Big St. Margarets Bay Lake
New Ross monzogranite/mafic porphyry	intrusive	exposed on South Lake and xenoliths of porphyries within New Ross monzogranite
New Ross monzogranite/porphyry	intrusive?/gradational	exposed southwest of South Lake; gradational east of Vaughans area; possibly textural variations
Bates Lake monzogranite/porphyry	intrusive? cogenetic? gradational?	possibly textural variations
Bates Lake monzogranite/mafic porphyry	intrusive	shape lithologic change within tens of metres
granodiorite/Carboniferous	depositional unconformity	inferred; evident from previous mapping (Ferguson, 1985)

*where determined, oldest unit on left

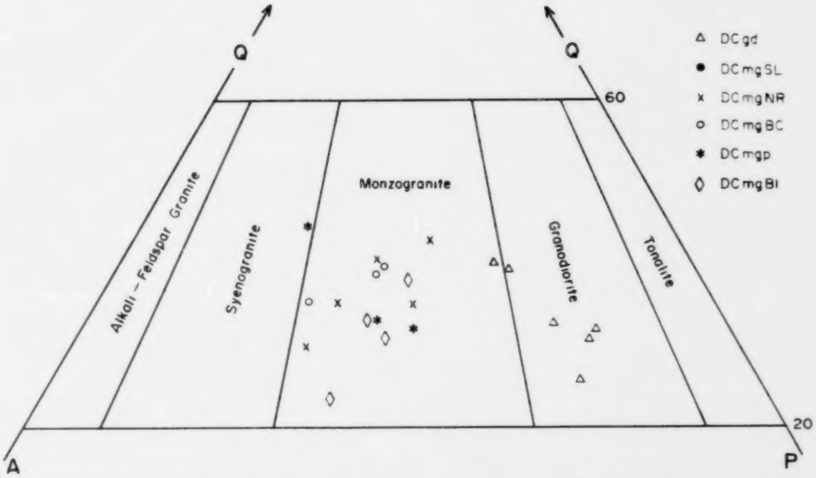

Figure 2. Ternary plot of quartz, alkali feldspar and plagioclase modal analyses. Divisions indicated on diagram are after Streckeisen (1976). Four hundred points were counted per sample.

inliers (approximate sizes: 2.5 km by 0.3 km, 1.5 km by 0.3 km and 1 km by 0.2 km) are elongated north-south, northeast-southwest and east-west respectively and occur in the area of the contact between the large mass of granodiorite to the north and monzogranite to the south. Faribault (1931) previously mapped these inliers as Meguma Group metasedimentary rocks. Although a few rocks of these inliers do resemble the metagreywackes and quartzites of the Meguma Group in appearance and mineralogy, most do not as they exhibit several phases (at least four) of intense deformation and gneissic banding. This style and degree of deformation is not characteristic of Meguma Group rocks from the southern part of the Meguma Terrane (P.K. Smith, personal communication).

GRANODIORITE

The biotite granodiorite (DCgd) is predominantly a light grey, megacrystic, coarse grained hypidiomorphic granular rock. Preliminary modal analysis of representative samples indicate individual mineral contents of plagioclase (40%), quartz (30%), alkali feldspar (17%) and biotite (13-15%). Plagioclase comprises approximately two-thirds of the entire feldspar content. Alkali feldspar occurs both as minor groundmass constituents and as megacrysts, with the megacrysts comprising approximately five to ten per cent of the rock. Trace muscovite is found as an alteration product of biotite and feldspar.

Within the main granodiorite body, variations are present in (i) percentages of biotite (13-20%) and megacrysts (5-25%) (ii) grain size (fine- to coarse-grained) and (iii) feldspar ratios (plagioclase: alkali feldspar - 65-75%:35-25%). Changes in the feldspar ratios reflect an approach, in local areas, of the overall composition of the granodioritic to monzogranitic rocks. At the northern contact with the Meguma Group metasedimentary rocks, textural variations within the granodiorite include a medium- to coarse-grained, equigranular, slightly megacrystic marginal unit (DCgda) and a fine- to medium-grained, slightly porphyritic marginal unit (DCgdb). A very biotite-rich granodioritic unit (DCgdc) occurs close to the contact with the large areas of monzogranite to the south. This biotite-rich phase is characterized by a medium to dark grey, hypidiomorphic granular to slightly porphyritic texture, with a predominantly medium grain size unit and a modal biotite content up to 20 per cent.

Small xenoliths, generally less than 30 cm and of varying shapes and degrees of assimilation, are common within the granodioritic rocks and normally comprise one per cent of most outcrops. The majority of xenoliths appear to be metasedimentary, although some have an unusual appearance with intense deformation and gneissic banding, and often resemble the gneissic rocks previously mentioned.

MONZOGRANITIC ROCKS

The southwestern region of the study area, west of Panuke Lake, is underlain mainly by one major unit, the New Ross monzogranite (DCmgNR) (Fig. 1), and smaller bodies of biotite monzogranite, two mica monzogranite and porphyry. The southeast portion of the study area displays more variation with several units of monzogranite.

The Sandy Lake monzogranite (DCmgSL), a biotite monzogranite and the most primitive of the monzogranitic rocks, occurs on the southeastern side of Panuke Lake. Similarities in biotite and megacryst content and general resemblance of textures between the granodiorite and the Sandy Lake monzogranite made field identification between these two units difficult. This necessitated systematic slabbing and staining. A sharp intrusive contact is exposed between the Sandy Lake monzogranite and the biotite granodiorite on the shores of Big St. Margarets Bay Lake. Dykes of fine grained monzogranite are seen in some areas of the contact zone. The Sandy Lake monzogranite is predominantly a medium- to coarse-grained, megacrystic, biotite-rich (modal count 10-12%) monzogranite with minor muscovite (<1%) and trace or no cordierite. Plagioclase and alkali feldspar occur in approximately equal proportions (plagioclase:alkali feldspar - 54:46%). Minor variations in grain size are seen on an outcrop scale. The megacryst content (mainly alkali feldspar) generally averages 10 to 15 per cent.

A small body of biotite monzogranites, the Sherwood monzogranite (DCmgS), occurs in the southwestern corner of the study area along Highway 14. This body is white to pervasively hematized and has a high biotite content (≈8%) and low megacryst content (<5%). Trace cordierite and muscovite are evident. Although this biotite monzogranite has a slightly lower biotite and megacryst content than the Sandy Lake monzogranite, the relationship to the Sandy Lake unit was not observed and hence the possibility of two distinct units not determined.

The New Ross monzogranite (DCmgNR) is distinguished from the Sandy Lake monzogranite primarily by (i) the presence of cordierite (1-3%) (ii) a lower biotite content (≈5-7%) and (iii) increased saussuritization of the feldspars. Muscovite is present in trace amounts to a maximum of two per cent. The plagioclase content is uniform througnout the unit (20%), while the amount of alkali feldspar and quartz ranges from 29 to 49 per cent and 46 to 29 per cent respectively. The contact between the two units is not exposed, and therefore the control on the contact relationships is poor. However, xenoliths of the Sandy Lake monzogranite are found within the New Ross monzogranite implying that the Sandy Lake unit is older. The New Ross monzogranite is medium grained, megacrystic, and typically white to buff in the study area with alteration effects (reddened cores of feldspars and orangish pink matrix) evident in the southern portion of the map sheet and along Highway 14. Variations in grain size (i.e. fine grained, pegmatitic, porphyritic) are evident within this unit, particularly at contact areas with the Sherwood monzogranite and other units. The contact between the New Ross monzogranite and the granodiorite is inferred from lithologic change. Close to the contact the New Ross monzogranite exhibits a slight increase in biotite content (7-8%) compared to the normal amount (4-7%).

A fine grained unit, the Bates Lake monzogranite (DCmgBL), occurs in close association with the above-mentioned coarse grained units. This fine grained monzogranite occurs predominantly on map sheet 21A/16 as a homogeneous, light grey to buff, locally hematized, equigranular unit. Point counting results indicate alkali feldspar (39%), quartz (33%), plagioclase (21%) and biotite (7%) are the major minerals. Minor muscovite (1%) is present throughout the unit.

Dykes of the Bates Lake monzogranite occur extensively in the contact zone with the granodiorite and are found in the main mass of the granodiorite. Dykes are also found in areas of the contact between the granodiorite and the Sandy Lake monzogranite, the contact zone between the granodiorite and the New Ross monzogranite, and within the Sandy Lake and New Ross units.

PORPHYRITIC ROCKS

In this study, the term porphyry refers to monzogranitic rocks with a predominantly fine- with minor medium-grained groundmass containing >5 per cent medium- to coarse-grained phenocrysts. Porphyritic rocks in the study area are divided into two distinct mappable units, DCmgp and DCmgmp, the most obvious difference being the percentage of biotite of each unit.

Rocks of the DCmgp grouping, referred to as porphyry are light grey to buff, locally intensely hematized, and consist mostly of a fine grained groundmass with phenocrysts of alkali feldspar, plagioclase, quartz eyes, and, less commonly, biotite and cordierite. Muscovite is generally present in amounts of <1 to 2 per cent and biotite averages 5 per cent. Locally, some of these rocks are spatially associated with the Bates Lake monzogranite and may represent a textural variation of that unit. Other porphyries are present within the New Ross monzogranite as mappable bodies within the unit or as a textural variation which occurs predominantly at contact areas with the Sherwood monzogranite or other units.

The other porphyritic grouping, DCmgmp, referred to as the mafic porphyry are unique rocks characterized by (i) a high biotite content (10-18%) (ii) the presence of alkali feldspars megacrysts (2-3%) and (iii) a common abundance of xenoliths of variable rock types constituting 2 to 20 per cent of the rock volume. Limited in extent, the mafic porphyries are usually spatially associated with the Bates Lake monzogranite, but also occur as dykes in granodiorite. Field relations show the porphyries post-date the granodiorite but pre-date the Halifax Peninsula monzogranite, which is later intruded by the Bates Lake monzogranite.

COMPLEX

One unit exposed within the study area has been termed a complex. It is comprised of phases which are mineralogically similar but texturally variable, and display intricate and complicated relationships.

On the eastern side of Panuke Lake a polyphase body, the Big Indian polyphase intrusion (DCmgBI), intrudes the biotite granodiorite. Three mineralogically similar phases are evident within this complex:

1. a medium- to coarse-grained biotite (4-8%), muscovite (trace - 3%) ± cordierite, monzogranite characteristically containing garnet;

2. a quartz-feldspar ± biotite ± garnet porphyry, with a fine grained groundmass and phenocrysts of plagioclase, quartz, biotite and minor garnet;

3. a fine grained, saccharoidal, leucocratic (biotite <3%) microgranite containing muscovite (trace - 1%), cordierite (1%) and garnet occurring as rounded aggregates <1 cm diameter.

The complexities within this intrusion were first recognized by Corey (this volume) on map sheet 11D/13 to the east. These phases are highly aluminous, characterized by the presence of garnets, intimately associated and display sharp irregular contacts. Xenoliths of biotite granodiorite and Sandy Lake monzogranite are common within the complex.

Two separate blocks of the intrusion are found on map sheet 21A/16 East. One extends westward from 11D/13 for approximately 400 m and is truncated by a major northwest lineament on both map sheets. A smaller block is found to the southwest on 21A/15 East. It is terminated by an east-west fault, suggesting displacement of the body along this and(or) the above structural feature.

DEUTERIC ALTERATION

Widespread deuteric alteration effects such as chloritization, saussuritization, sericitization and kaolinization occur in varying degrees throughout all the rock types. Increased saussuritization of the feldspars as compared to the other units is present in the New Ross monzogranite. Localized intense hematization occurs predominantly with the Bates Lake monzogranite, the porphyritic units and the New Ross monzogranite. Hematization effects are less intense with only some feldspar (both plagioclase and alkali feldspars) affected on the peripheries of these deuterically altered areas. Examples of this hematization are seen in the study area around Vaughan on Highway 14 and within areas around Blind Bay on Panuke Lake. These effects are often suggestive of areas hosting mineralization as in the New Ross area (O'Reilly et al., 1982) and the Blind Bay area (Nova Scotia Department of Mines and Energy, 1980a), respectively.

MINERAL OCCURRENCES

Several new mineral occurrences (W, Cu and Mo) were discovered on 21A/16 East. Two of the tungsten showings occur within the Big Indian polyphase intrusive complex. In addition, similar mineral occurrences have been noted within the polyphase complex in the Christie Lake area on map sheet 11D/13 (Corey, this volume).

- Showing 1: The Powerline Showing consists of quartz-wolframite veins cutting the leucocratic, garnetiferous microgranite phase of the polyphase intrusion. This showing is located approximately 1.7 km east of Big St. Margarets Bay Lake along the powerline which traverses the north end of the lake. Four parallel quartz veins between 3 and 9 cm wide occur over a width of 4 m and appear to be restricted to the microgranite phase. Coarse bladed crystals of wolframite occurring as pods measuring 15 by 20 cm and up to 2 cm wide were noted in one vein.

- Showing 2: This showing consists of a small wolframite and scheelite-bearing quartz vein (5 mm wide) in an aplite dyke within a xenolith of Sandy Lake monzogranite. This xenolith occurs within the polyphase intrusion approximately 2 km southeast of the Powerline Showing.

Other smaller occurrences (W, Cu and Mo) are listed below (Fig. 1):

- Showing 3: Just west of Little Pine Lake to the north of the Powerline Showing (approximately 3.7 km), a subangular boulder (1 m by 1 m) of fine grained, equigranular monzogranite (similar to the Bates Lake monzogranite) contains a wolframite-bearing pegmatite vein. Within the pegmatite, wolframite occurs as small blades 1 cm long. This area is underlain by biotite granodiorite. The source of the boulder is not known.

- Showing 4: At the north end of Little Pine Lake, a leucocratic aplite dyke 10 to 15 cm wide has intruded the biotite granodiorite. The dyke can be traced for 20 m and contains approximately five per cent tourmaline. Localized hematized, muscovitized and greisenized areas, miarolitic cavities and minor sulphides (pyrite and chalcopyrite) occur over several metres within the dyke.

- Showing 5: On the western shore of Panuke Lake, a large, subangular boulder of granodiorite (1.5 m by 1.5 m) contains several small flecks (2 mm) of molybdenum within a concentration of quartz and potassium feldspar. The area is underlain by biotite granodiorite and the boulder is presumed to be local.

Three previously documented mineral showings are found within the study area (Fig. 1). The locations were verified and minor additional work is being done.

- Showing 6: A U-Cu occurrence is documented on the Metallogenic Map Nova of Scotia (Chatterjee, 1983) on the western edge of the map area north of Vaughan. Elevated radiometric readings correlated with fractures within a small body of hematized Bates Lake monzogranite. This showing is located on the western side of Highway 14, at the junction of the highway and a small dirt road existing to the west. In addition fractures crosscutting an inlier of gneissic rocks at this same location correspond with elevated radiometric readings.

- Showing 7: A documented U-Cu showing is located on the western side of Panuke Lake, in the contact area between the biotite granodiorite and the New Ross monzogranite. Abundant dykes of the fine grained Bates Lake monzogranite are found within the granodiorite and elevated radiometric readings correspond with fractures within some of the dykes (Nova Scotia Department of Mines and Energy, 1980a).

- Showing 8: Near Ellershouse a Mn-Au-Zn showing is found within the Halifax Formation metasedimentary rocks in the vicinity of the northern contact with the biotite granodiorite. This showing is evidenced by manganese staining of the metasedimentary rocks and due to the proximity of the occurrence to the contact, could be related to the batholith (Nova Scotia Department of Mines and Energy, 1980b).

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SOUTH MOUNTAIN BATHOLITH PROJECT: 1985 PLEISTOCENE SURVEY*

P. W. Finck and R. M. Graves

INTRODUCTION

Mapping and sampling of the surficial geology overlying the granitic terrane of central and southwestern Nova Scotia commenced during the 1985 field season. The study area is located within NTS map sheets 11D/05, 11D/12, 11D/13 and east of Highway 14 on map sheet 21A/09 (Fig. 1).

Erosional and depositional features of ice movement were mapped by field investigations and air photograph interpretation. In areas of thin till (<1.0 metres) where bedrock is exposed, glacial striations were mapped. Detailed mapping of these different glacial striation sets will aid in the interpretion of ice movements and directions of till transport. Mapping also involved studying landforms and local till stratigraphy. Tills were examined on the basis of lithology, colour, texture, fabric and sedimentary structures. These criteria will assist in determining the origin of the tills and their relationship to bedrock.

PREVIOUS WORK

The development of a regional glaciation model and till stratigraphy for Nova Scotia is continually evolving. Stea (1983) and Stea and Finck (1984) summarized the series of ice flow events involving northern Nova Scotia.

The majority of work conducted on mainland Nova Scotia recognizes two major glacial events:

1. A major southeast trending ice movement deposited large amounts of till, strongly striated and sculptured bedrock, and influenced the surface terrain of mainland Nova Scotia. It is correlative with ice flow phase 1 (Stea and Finck, 1984) of northern Nova Scotia. This movement deposited the Hartlen Till (Stea and Fowler, 1979) which has a southeastward direction of transport (Nielson, 1976).

2. A later, younger ice flow that varies in direction but is generally southward trending on most of mainland Nova Scotia, formed some of the surface tills of northern and central mainland Nova Scotia and the drumlin fields along the southern coastline. This flow is correlative with ice flow phase 2 of Stea and Finck (1984). This movement deposited the Lawrencetown Till (Grant, 1963).

Detailed mapping by individual workers has resulted in the recognition of more recent and local ice movements. Grant (1976b) noted west and southwest ice movement stemming from the South Mountain Batholith (SMB). Hickox (1962) noted a late ice advance flowing northward from the SMB.

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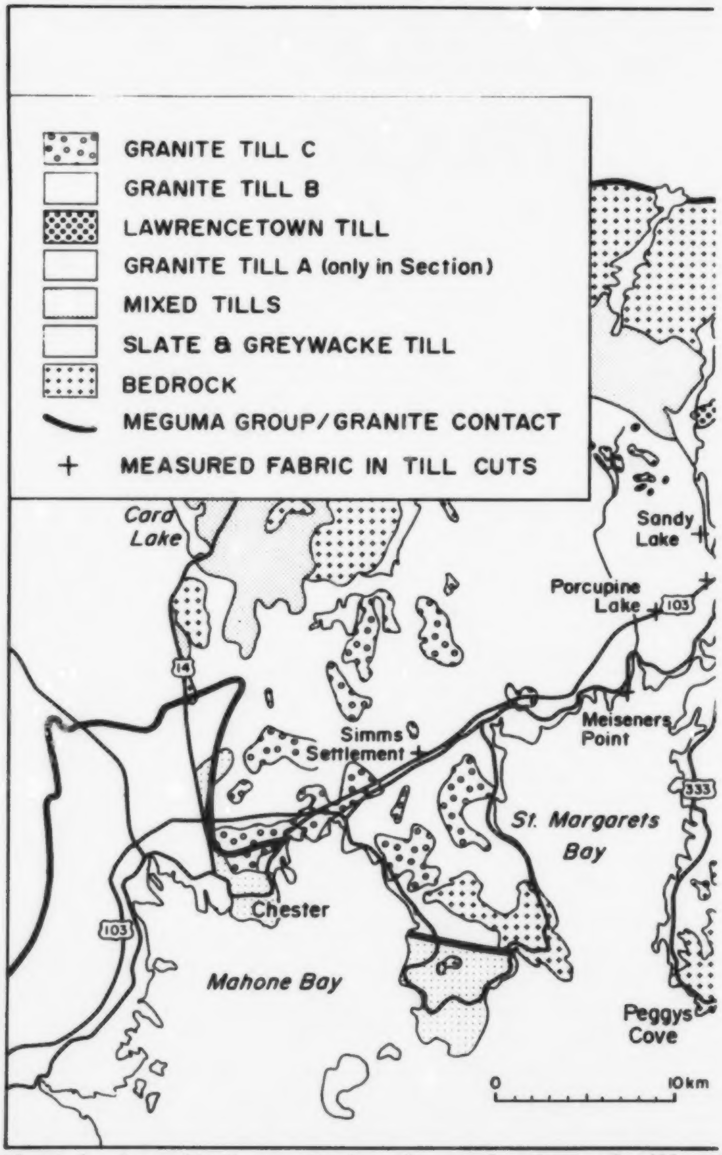
GRANITE TILL C
GRANITE TILL B
LAWRENCETOWN TILL
GRANITE TILL A (only in Section)
MIXED TILLS
SLATE & GREYWACKE TILL
BEDROCK
MEGUMA GROUP/GRANITE CONTACT
MEASURED FABRIC IN TILL CUTS
Card Lake
Sandy Lake
Porcupine Lake
103
14
Simms Settlement
Meiseners Point
333
St. Margarets Bay
Chester
103
Mahone Bay
Peggys Cove
0
10km

Figure 1. Generalized map showing the areal extent of till units and exposed bedrock of the South Mountain Batholith. Study area is defined by heavy solid line. Measured fabric in till cuts represented by cross.

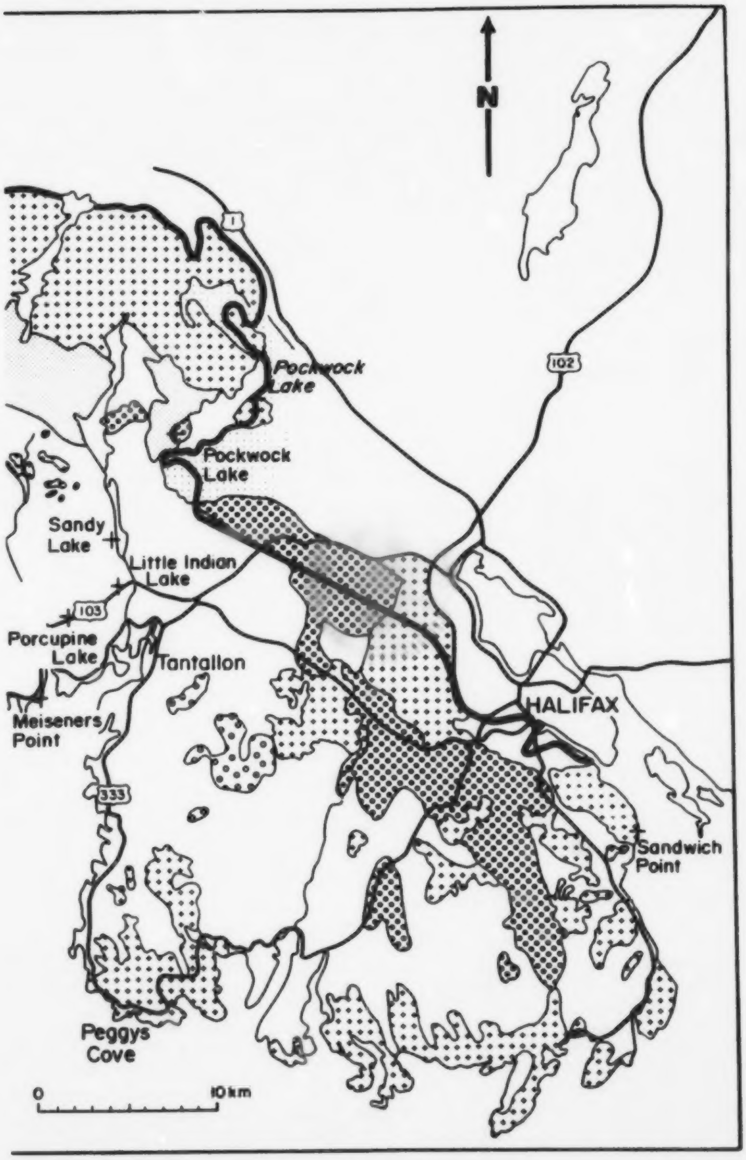
N
1
102
Pockwock Lake
Pockwock Lake
Sandy Lake
Little Indian Lake
103
Porcupine Lake
Tantallon
Meiseners Point
333
HALIFAX
Sandwich Point
Peggys Cove
0
10km

Figure 1. Continued

Stea and Finck (1984) extended this northward flow (ice flow phase 3), mapping its influence across the central Cobequid Highlands and the northern Carboniferous lowlands. They also recorded a west-southwestward ice movement in the Hants-Colchester lowlands postdating the northward ice flow that originated on the SMB.

TILL UNITS

Preliminary mapping results reveal three major till units. The units will be discussed in stratigraphic order from oldest to youngest (Fig. 1).

GRANITE TILL A

Granite Till A is exposed in section on the north-central part of map sheet 21A/09, on 11D/12 and on 11D/13. Near Card Lake and west of Pockwock Lake it occurs as a thin sporadic ground moraine. The areal extent of Granite Till A is limited and as such does not form a mappable unit. As part of drumlins it is normally overlain by younger tills.

Granite Till A is compact to highly compact. The color varies from dark yellowish brown (10YR4/2) to moderate brown (5YR4/4) (Geological Society of America, 1980). It is moderately stony, has a sandy matrix, and is usually structureless but sometimes exhibits a poor to moderately developed subhorizontal fissility (Fig. 2). The pebbles consist of Meguma Group and foreign clasts with up to three different local and(or) far travelled granites. Meguma Group and foreign pebbles are typically faceted and striated. Local and far travelled granites may, in part, be distinguished on the basis of angularity.

Granite Till A is stratigraphically the oldest till noted in the study area. At Sandwich Point the till overlies granite bedrock and underlies Lawrencetown Till (Fig. 3), while at Island Lake, it is overlain by Granite Till B.

At Meisners Point two fabrics were measured in Granite Till A (Fig. 3). One fabric, located 2.75 m below the contact with the overlying till, shows a relatively strong northwest-southeast orientation and is interpreted as representative of Granite Till A, as a fabric in Granite Till A at Little Indian Lake also has a strong northwest-southeast orientation. The second fabric measured 0.5 m below the contact is interpreted as a re-oriented fabric.

LAWRENCETOWN TILL

Lawrencetown Till forms a surface moraine over a wide belt extending south and southeast from Hammonds Plains towards Hatchet Lake and Sambro (Fig. 1). It occurs as a thin till veneer over bedrock and as thick deposits draping and(or) forming drumlins (Fig. 4). West of Pockwock Lake, the till occurs as a poorly exposed till veneer over granite bedrock. Southeast of Card Lake, it forms thin ground moraine, drumlins and drumlin core till underlying Granite Till B.

Lawrencetown Till is moderately compact and cohesive. The colour is moderate brown (5YR4/4 to 5YR3/4) (Geological Society of America, 1980). Subparallel sandy layers are common (Stea, personal communication, 1985).

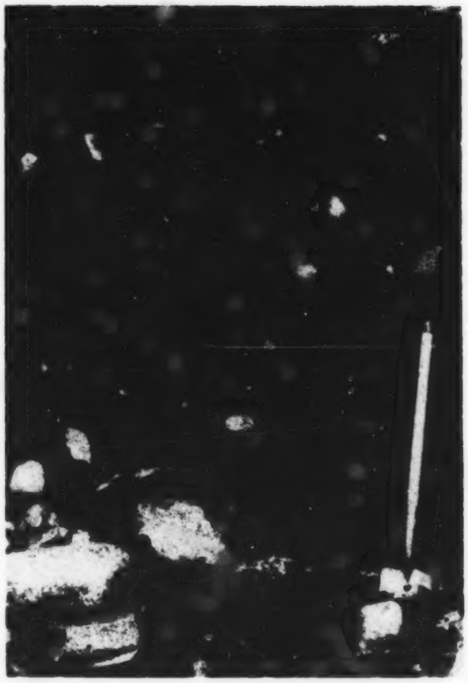

Figure 2. Granite Till A exposed in a shallow cut along Highway 14, east of Card Lake.

The matrix is sand with varying amounts of silt and clay. Stea and Fowler (1979b) noted a facies gradation from brown, compact, silt-sand till to a reddish, moderately compact mud till, whereby the mud till matrix was 25 per cent sand, 50 per cent silt and 25 per cent clay and the sandy till matrix was 50 per cent sand, 35 per cent silt and 15 per cent clay. Lawrencetown Till has a very high matrix to clast ratio with clasts usually less than five per cent of the till. The pebbles are predominantly Meguma Group and foreign with minor amounts of local and distal granite. The percentage of local granite increases down-ice of a Meguma Group/granite contact to a maximum of approximately 50 per cent of the total clast content. However, on average, the amount of local granite material rarely exceeds 20 per cent. The till matrix typically becomes more sandy and less cohesive with increasing down-ice distance from the Meguma Group/granite contact.

Meguma Group and foreign clasts in Lawrencetown Till are usually small, faceted and striated. Granitic bedrock is incorporated into Lawrencetown Till as larger rock fragments with more variable angularity. If the bedrock source is megacrystic granite the clasts may be disaggregated megacrysts.

At Sandwich Point, Lawrencetown Till is draped over Granite Till A which forms the core till of the drumlin. Lawrencetown Till appears to

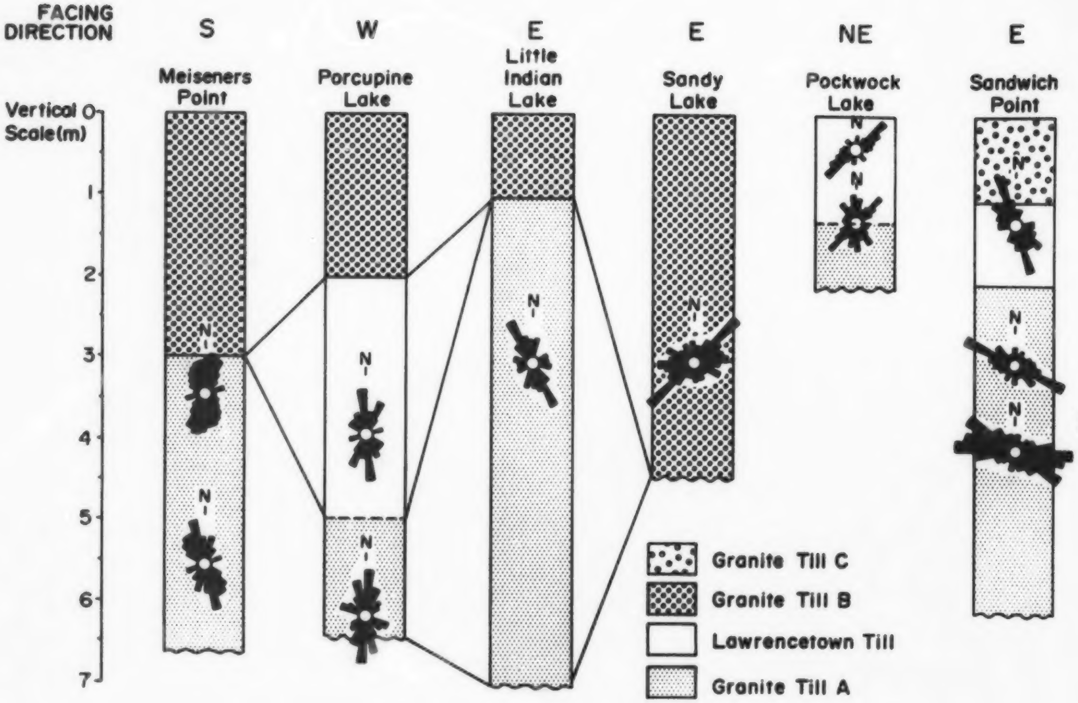
FACING DIRECTION
S
W
E
E
NE
E
Meiseners Point
Porcupine Lake
Little Indian Lake
Sandy Lake
Pockwock Lake
Sandwich Point
Vertical Scale(m)
0
1
2
3
4
5
6
7
N
Granite Till C
Granite Till B
Lawrencetown Till
Granite Till A

Figure 3. Stratigraphic relationship and till fabric data of the major till units.

Figure 4. A thick section of Lawrencetown Till exposed in a gravel pit at Whites Lake. It is overlain by a local granite till.

thicken towards the flanks of the drumlin. Lawrencetown Till is in turn overlain by Granite Till C, which is a loose, sandy granite till. At Porcupine Lake, Lawrencetown Till underlies Granite Till B and appears to overlie Granite Till A (Fig. 3).

At Sandwich Point a strong fabric, with the major mode oriented at 165°-345° was measured in the Lawrencetown Till (Fig. 3). At Porcupine Lake a strong 180°-360° fabric was measured at the contact between Granite Till A and the Lawrencetown Till. In the centre of the Lawrencetown Till a bimodal fabric exists with the major mode oriented 175°-355° and the minor mode oriented 025°-205° (Fig. 3). At Simms Settlement, the Lawrencetown Till fabric has a strong 005°-185° orientation.

GRANITE TILL B

Granite Till B occurs as a widespread surface till on map sheets 21A/09, 11D/12 and 11D/13 (Fig. 1). It typically thins over or pinches out against topographic highs and thickens in depressions. It can be divided into two facies (3A and 3B) based on associations with surface topography, lithology and structure.

Granite Till B is a loose to moderately compact till, generally moderate yellowish brown (10YR5/4) but may vary from greyish orange (10YR7/4) to dark yellowish brown (10YR4/2) (Geological Society of America, 1980). It has a sandy structureless matrix but washed sandy zones around boulders and clay skins on pebbles are common (Fig. 5). In Granite Till B the matrix to clast ratio is highly variable. The clasts are generally dominated by a single granite type and another minor granite type. Quantity of Meguma Group and foreign clasts, in part re-worked from underlying till sheets, is highly variable. Meguma Group and foreign clasts are small and rounded whereas granite clasts are angular to subangular. At Meisners Point and Little Indian Lake, Granite Till B overlies Granite Till A, while

Figure 5. Stony granite till (Granite Till B) exposed in a gravel pit along the Canaan Road north of Bezanson Lake. The clasts in this till are entirely coarse grained, two-mica, cordierite monzogranite.

Figure 6. Granite boulder ablation lag.

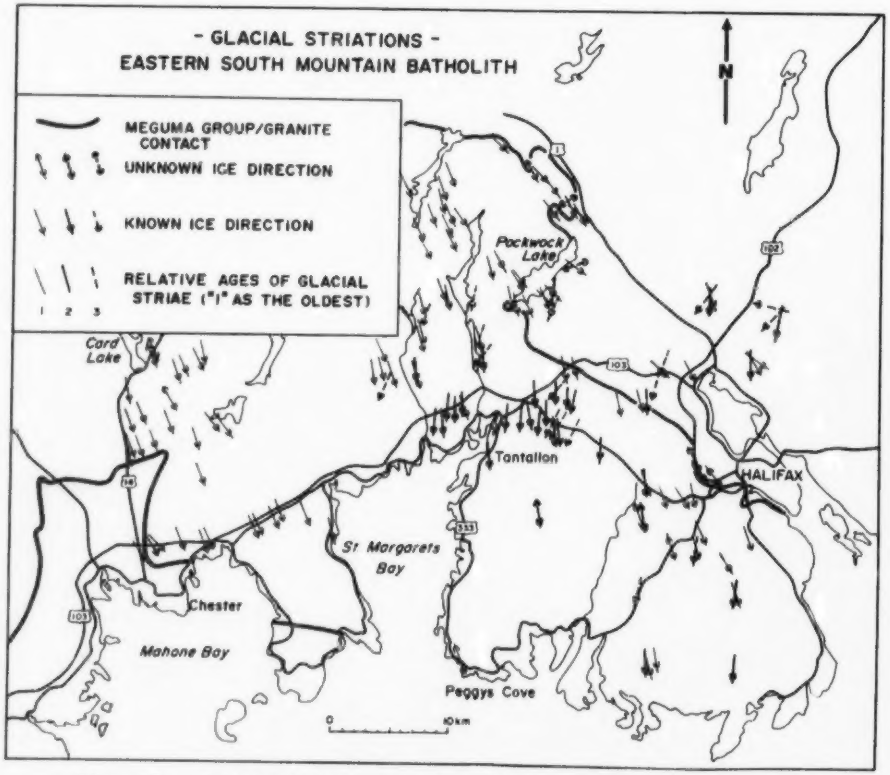
- GLACIAL STRIATIONS -
EASTERN SOUTH MOUNTAIN BATHOLITH
MEGUMA GROUP/GRANITE CONTACT
UNKNOWN ICE DIRECTION
KNOWN ICE DIRECTION
RELATIVE AGES OF GLACIAL STRIAE ("1" AS THE OLDEST)
1 2 3
N
Card Lake
Pockwock Lake
Tantallon
HALIFAX
St Margarets Bay
Chester
Mahone Bay
Peggys Cove
1
102
103
333
14
0
10km

Figure 7. Glacial striations on the eastern South Mountain Batholith.

at Simms Settlement and Porcupine Lake overlies Lawrencetown Till (Fig. 3). In many areas, Granite Till B overlies bedrock.

Till fabrics are difficult to measure in Granite Till B due to the absence of elongated clasts and the general lack of an internal fabric. A fabric measured by R. Stea (personal communication, 1985) in Granite Till B at Sandy Lake (Fig. 3) has a strong northeast-southwest orientation. Another northeast-southwest fabric was measured at a depth of 0.5 m in the surface till (Lawrencetown Till) at Pockwock Lake. At the contact of the Lawrencetown Till and Granite Till A, a bimodal fabric showed north-south and northeast-southwest modes. The north-south mode correlates well with fabrics seen in Lawrencetown Till at Simms Settlement and Porcupine Lake (Fig. 3). The northeast-southwest modes are probably inherited from Granite Till B.

The northeast-southwest trending fabric at Sandy Lake correlates with southwest trending striations measured locally and regionally. This fabric was measured on an east facing slope and would be subjected to deformation by a southwest ice flow. The northeast-southwest fabric measured in the upper part of Lawrencetown Till at Pockwock Lake is consistent with the Sandy Lake fabric. The Pockwock Lake fabric was also measured on an east facing hill. Northeast-southwest fabric and southwest trending striations are not found on 21A/09. At present there is no evidence to suggest that here Granite Till B was transported southwest. However, in the Sandy Lake-Pockwock Lake area and the north-central portion of the Halifax Peninsula it appears that a southwest ice movement locally influenced the fabric of the surface till sheet.

GRANITE TILL C

Granite Till C occurs on map sheets 11D/12 and 21A/09 (Fig. 1). It generally forms a sporadic isolated hummocky moraine. The areal extent of Granite Till C was defined using air photograph interpretation. Where this till does not have a hummocky morphology it could not be distinguished on a mappable scale from Granite Till B.

Granite Till C is typically loose, the colour varies from greyish orange (10YR7/4) to moderate yellowish brown (10YR5/4) (Geological Society of America, 1980). The matrix is sandy containing sand lenses, sandy-gravel lenses and crossbedded sand. A surface boulder-cobble (Fig. 6) lag is commonly found overlying all other deposits and may represent a completely matrix-less till correlative with unit Granite Till B. An example is the granite erratics at Peggys Cove.

Three and occasionally four granite clast types are seen in this unit however Meguma Group and foreign pebbles are always present. The clasts reflect local and distant bedrock sources.

MIXED TILLS

West of Pockwock Lake (Fig. 1), mixed tills are thin and generally confined to depressions and bedrock hollows. Granite Tills A and B, and the Lawrencetown Till are identified but the discontinous nature of the deposits prevented further subdivision. Lawrencetown Till, though sporadic, appears to be the dominant till.

STRIATIONS

Three main azimuthal groupings of striations are recognized, namely (1) southeastward, (2) southward and (3) southwestward (Fig. 7). The most widespread and common set trends southeastward ranging from 134° to 165°. These striations are best preserved on northwest facing stossed outcrops. A second group of striations trend from approximately 170° to 195° and are preserved on north facing outcrop. Striations formed during this erosional event are mainly restricted to map sheet 11D/12 with isolated striated outcrop on map sheet 11D/13. Southward trending striations are best preserved along Highway 103 north of the Head of St. Margarets Bay and near Lewis Lake. A third group of striations trend southwestward from 200° to 250°. These striations were mapped on the north part of map sheet 11D/12 and the southcentral region of map sheet 11D/13, and are usually preserved on the northeast sides of hills and outcrops.

The southeast trending striations are the oldest observed in the field area. This is illustrated on an outcrop east of Pockwock Lake (map sheet 11D/13) where striations trending 134° are cut by 189° trending striations. Further evidence of this age relationship can be seen on an outcrop near Harrietsfield (map sheet 11D/12). Striations trending 155° are well preserved on an outcrop at the base of a Lawrencetown Till section. On top of the same outcrop striations trending 186° to 190° are seen where the bedrock is overlain by thinner till (Fig. 8). Striations oriented 004°-184° were also observed on a quartzite boulder lodged in the overlying Lawrencetown Till. This suggests that the 185° to 190° trending striations were not formed by southeastward ice flow which was deflected around or over the bedrock relief but represent a younger, distinct ice flow event which formed or modified the overlying till.

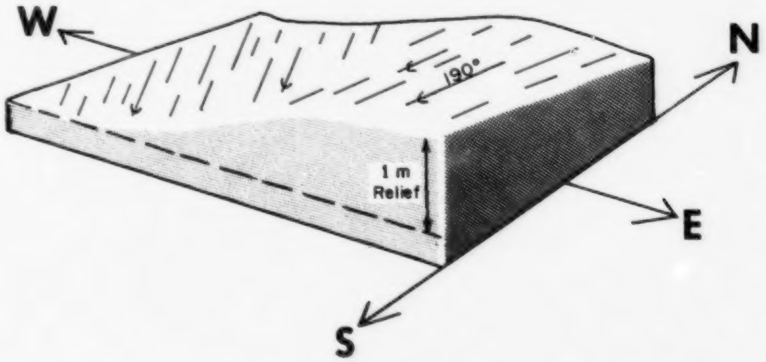

Figure 8. This picture shows southward trending striations preserved at the top of a polished outcrop at Bedford.

This type of relationship is illustrated at Tennycape Quarry on the south shore of the Minas Basin. At the base of a till section on the quarry floor, southeastward trending striations are cut by southward trending striations (Stea, 1984). At the top of the quarry, striations trending 028° are truncated by striations trending 284°. The 028° and 284° trending striations represent the last two ice flows to affect the area (Stea and Finck, 1984) while the southeastward and southward represent earlier ice flows. The sense of ice flow and relative ages of these striations can be verified locally and regionally.

At Bedford a northwest facing outcrop is grooved and striated with directions varying from 135° to 155°. The striations are stained (manganese oxide?) along their length in contrast with a fresh appearance of the outcrop surface (Fig. 10). At the top of the outcrop unstained striations trending 181° are preserved on the fresh stossed rock surface (Fig. 11). The 181° set is inferred to be younger than the 135° to 155° set. When stained and unstained striations occur on the same outcrop without clear crosscutting relationships (as at Bedford) the stained set may be inferred to be the oldest. This relationship is demonstrated east of Truro where fresh striations trending 247° cut older stained striations trending 020° (Stea and Finck, 1984).

Along Highway 103 north of Lewis Lake (map sheet 11D/12) striations and grooves on a flat outcrop are oriented 173°-353°. The top and northeast sides of the ridges, separating the grooves, are cut by striations trending 205° (Fig. 12). This indicates that the 205° striation set is younger than the 173°-353° oriented set.

TILL CLAST GEOLOGY

A major aspect of the Pleistocene mapping program involves the identification of rock types found within the till. This will aid in (i) further subdivision of the various tills on the basis of bedrock origin and genesis, (ii) determination of the nature of underlying bedrock in areas of limited bedrock exposure, (iii) definition of large-scale dispersion patterns, and (iv) interpretation of the till geochemistry.

The three broad pebble groupings are granitoids, Meguma Group and foreign. Division of the granitoid clasts (Table 1) was made by noting (i) modal percentage of biotite, muscovite and cordierite, (ii) grain size, (iii) texture, (iv) alkali feldspar to plagioclase ratio (determined by sodium cobaltinitrite staining), (v) color and (vi) alteration. Allochthonous pebbles have been classified as Meguma Group (greywacke, quartzite, slate) and foreign (quartzite, basalt, rhyolite, tuff, sandstone, hornblende granite, diorite). Figure 12 is a generalized map showing the major granitic clast types seen in the surface till sheet.

CLAST VARIATIONS AND TILL PROVENANCE

GRANITE TILL A

A consistent feature of this till sheet is the varied nature of the clast content. Two and perhaps three granite types are common. There is also a strong Meguma Group and foreign component that can vary from 20 to

Table 1. Description of granite clasts.

Name	Colour	Grain Size and Texture	Biotite	Muscovite	Cordierite	Alteration
biotite granodiorite	light to medium grey	medium- to coarse-grained, K-feldspar megacrystic	15%	0%	0%	minor bluish alteration along Highway 101
biotite monzogranitic	light to medium grey	fine- to coarse-grained K-feldspar megacrystic	10%	0%	0%	unaltered
biotite ± muscovite ± cordierite monzogranite	light grey to buff	medium- to coarse-grained, K-feldspar megacrystic	5%	0-2%	minor	saussuritization, minor hematization
porphyry	light buff, greyish pink, medium grey	fine- to medium-grained, inequigranular, quartz, K-feldspar and plagioclase megacrysts	2-10%	trace to 3%	0%	saussuritization
biotite-muscovite monzogranite	pink, buff, grey, white	fine- to medium-grained, equigranular, 9 + 2 (3-4 mm)+ K-feldspar (5-7) megacrysts	3-5%	trace to 3%	0%	minor hematization
leucocratic rocks	pink, white, light grey	fine grained, equigranular	0-3%	0-2%	0%	minor hematization
altered granite	light green, buff-brown, brownish black	fine grained, equigranular	0%	0-3%	0%	albitization, greisenization

Figure 9. This picture shows southeastward trending, stained (MnO_2?) striations preserved on the north side of a polished outcrop at Bedford.

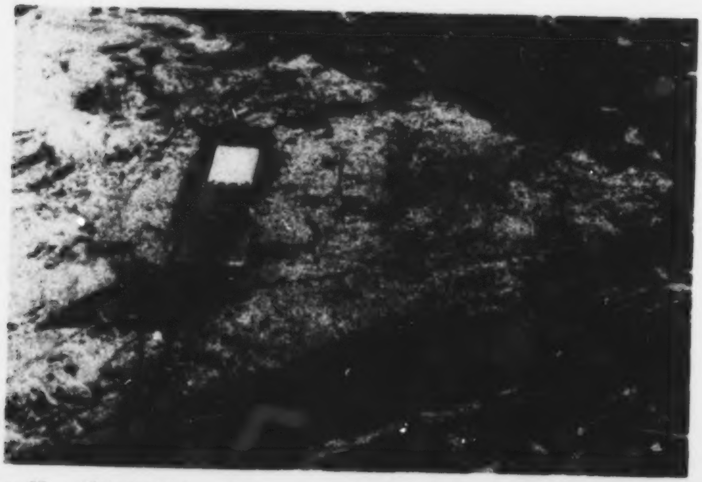

Figure 10. Illustrates the age relationship between 155° trending striations that correlate with Granite Till A and 190° trending striations that correlate with the Lawrencetown Till (see text). The outcrop is located at the base of a 3 m Lawrencetown Till section in a gravel pit southeast of Harrietsfield.

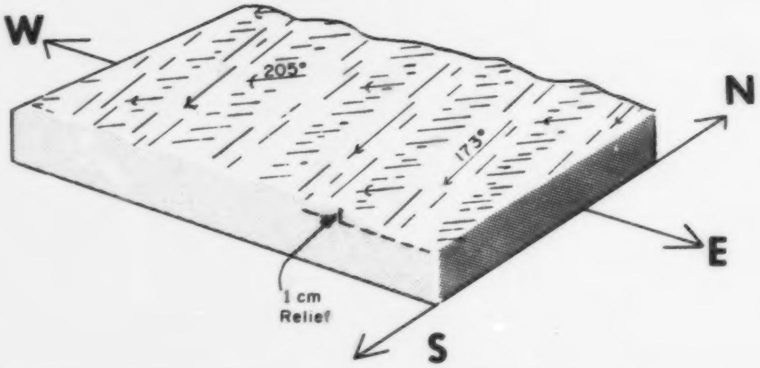

Figure 11. Figure 11 illustrates the age relationship between ridges and striations oriented 173°-353° and younger 205° trending striations (see text). This outcrop occurs east of Lewis Lake along Highway #103.

50 per cent. The sample database does not allow a detailed interpretation of the provenance for this unit. However, the high Meguma Group and foreign clast content indicates the source of the till to be, in part, derived from north of the granitic terrain. As well, the occurrence of two and occasionally three granite clast types in the till indicates incorporation of material over a broad area or a variety of underlying granitic bedrock lithogies.

LAWRENCETOWN TILL

Lithologies within this unit are generally dominated by Meguma Group and foreign clasts. This is best seen at Hammonds Plains and Harrietsfield where the till occurs as drumlin fields and thin ground moraine. Pebbles sampled from the drumlins are entirely Meguma Group and foreign rock types. The ground moraine has a granodiorite component (^{d}10%) that is believed to have a local source. At Harrietsfield and Whites Lake, where locations are within the pluton, the granite content increases with observed local and distal granite clast types.

GRANITE TILL B

In this unit the clast population is usually one granitic type. However a second, minor, granite clast type is also common. The major granite type is considered to have been derived from local bedrock, whereas the minor type represents further transported material. In the Upper Tantallon area where the till is generally less than three metres thick, unimodal clast populations represent underlying bedrock. Bimodal granite populations of roughly equal proportions are interpreted as showing a granite/granite contact within 500 metres. Within the study area, the granite clast population representing underlying bedrock generally increases down-ice (i.e. southward) from a granite/granite contact. Ignoring dilutions from older tills, clasts in this till unit will reach 100 per cent within two kilometres down-ice from the contact.

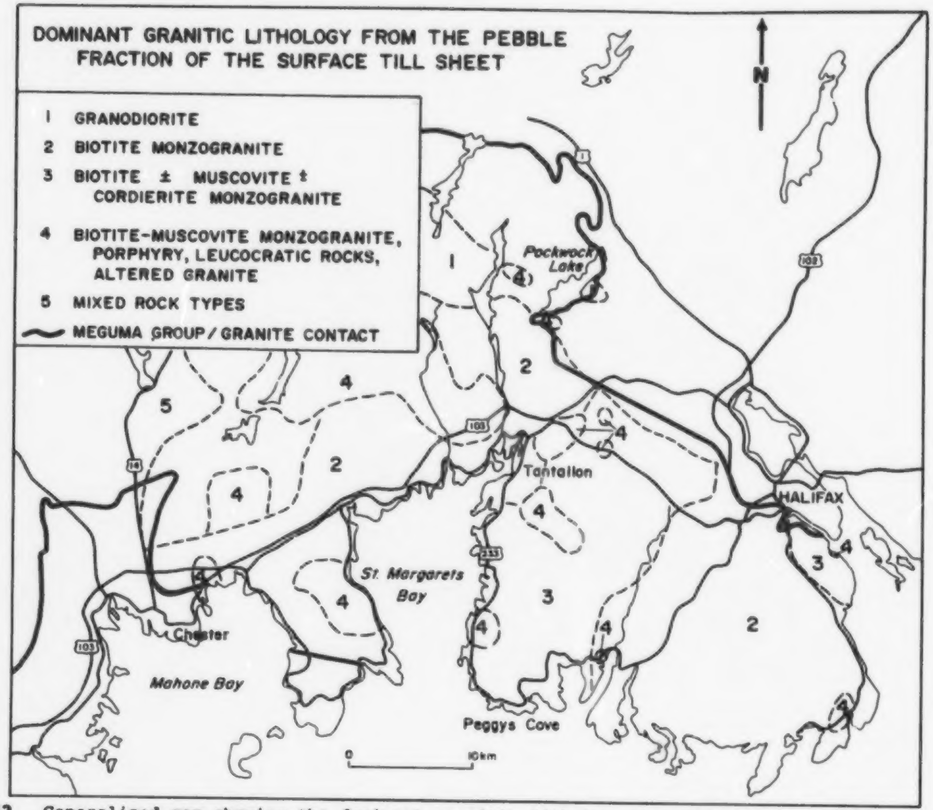
DOMINANT GRANITIC LITHOLOGY FROM THE PEBBLE FRACTION OF THE SURFACE TILL SHEET
1 GRANODIORITE
2 BIOTITE MONZOGRANITE
3 BIOTITE ± MUSCOVITE ± CORDIERITE MONZOGRANITE
4 BIOTITE-MUSCOVITE MONZOGRANITE, PORPHYRY, LEUCOCRATIC ROCKS, ALTERED GRANITE
5 MIXED ROCK TYPES
MEGUMA GROUP / GRANITE CONTACT
N
Pockwock Lake
Tantallon
HALIFAX
St. Margarets Bay
Chester
Mahone Bay
Peggys Cove
0
10km
1
2
3
4
5
103
102
14
333

Figure 12. Generalized map showing the dominant granitic lithology from the pebble fraction of the surface till sheet.

GRANITE TILL C

This till was rarely sampled and is considered allochthonous. Where mapped it is characterized by three granite clast types. Rounded Meguma Group and foreign clasts also constitute a significant proportion (20-40%) of this till.

Figure 13 shows the percentage of nongranitic clasts in the surface till sheet on map sheet 11D/12. In the Hammonds Plains - Blue Mountain Hill area contours of the nongranitic clast percentage generally parallel the Meguma Group/granodiorite contact. The contact trends northwest-southeast. The clast percentage decreases in a southwestward direction. This pattern is most easily explained by a south to southwest glacial dispersal of non-granitic clasts. This agrees with striation directions and fabric orientations which suggest the presence of both ice movements in the area.

Pebble counting has resulted in subdivision of the surface tills on the basis of granitic lithologies. The four broad subdivisions shown on Figure 12 are (1) granodiorite (2) biotite monzogranite (3) biotite ± muscovite ± cordierite monzogranite and (4) biotite muscovite monzogranite, porphyry, and leucocratic rocks. The granite clast content of Granite Till B shows a reasonable correlation with the local bedrock on map sheets 11D/05, 11D/12 and 11D/13. As bedrock mapping has not been completed for map sheet 21A/09 a comparison cannot be made.

CONCLUSIONS

Three distinct till units have been distinguished on the basis of texture, structure, lithology and fabric.

Granite Till A, exhibits properties characteristic of a lodgment till (Dreimanis, 1976) and is correlative with the Hartlen Till (Stea and Fowler, 1979). Within the study area the till was transported generally southeastward.

Lawrencetown Till is interpreted as a basal melt-out till (Nielson, 1976) having properties consistent with those outlined by Dreimanis (1976). It is correlative with the Lawrencetown Till (Grant, 1975) and within the study area was transported generally southward (Stea and Fowler, 1979).

Granite Till B is tentatively interpreted as a basal melt-out till. On the basis of striation, fabric and clast data it appears a late southwest ice movement may have locally formed or reworked Granite Till B. The effect of this southwest movement on the granite till outside the study area is not known.

Granite Till C is texturally similar to and is interpreted as an ablation till. The ablation till is associated with the locally derived Granite Till B. This suggests that tills B and C represent a depositional event unrelated to underlying till units.

Granite Till A and the Lawrencetown Till have a dual provenance as indicated by the combinations of local and far travelled rock types. The

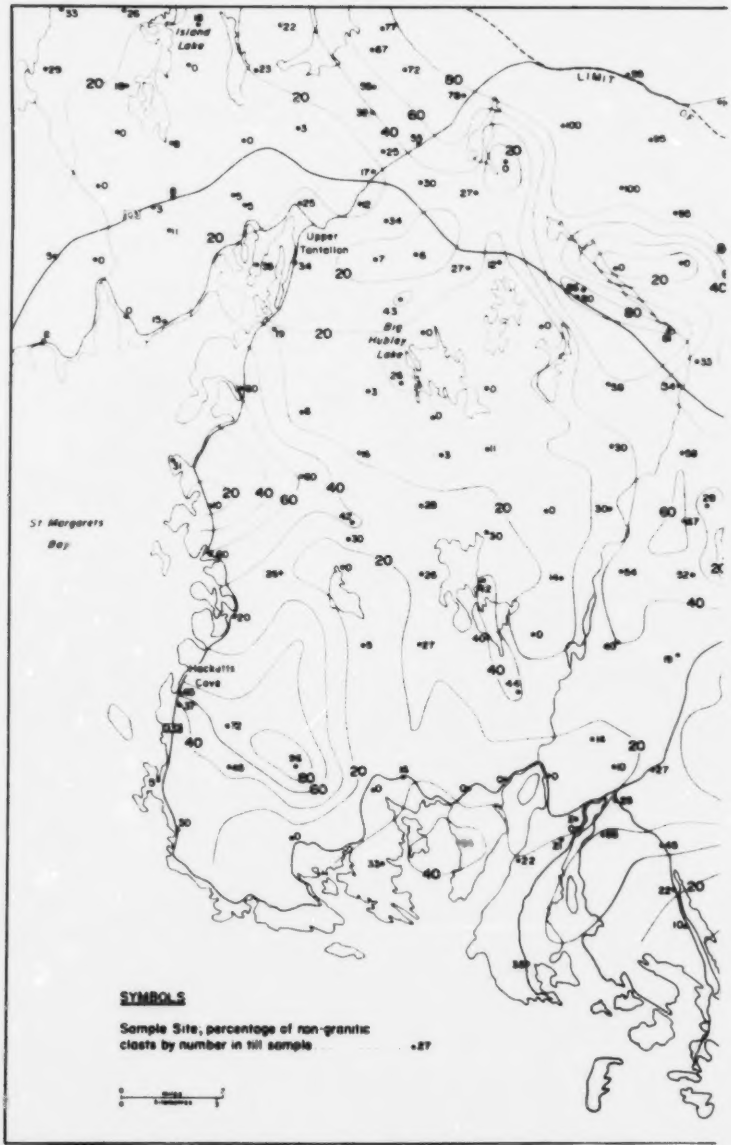
Island Lake
LIMIT
Upper Tantallon
Big Hubley Lake
St Margarets Bay
Hacketts Cove
20
40
60
SYMBOLS
Sample Site; percentage of non-granitic clasts by number in till sample .27

Figure 13. Halifax Peninsula: Contour map of the non-granitic clasts in the surface till sheet. Clasts counted were larger than 1.25 cm.

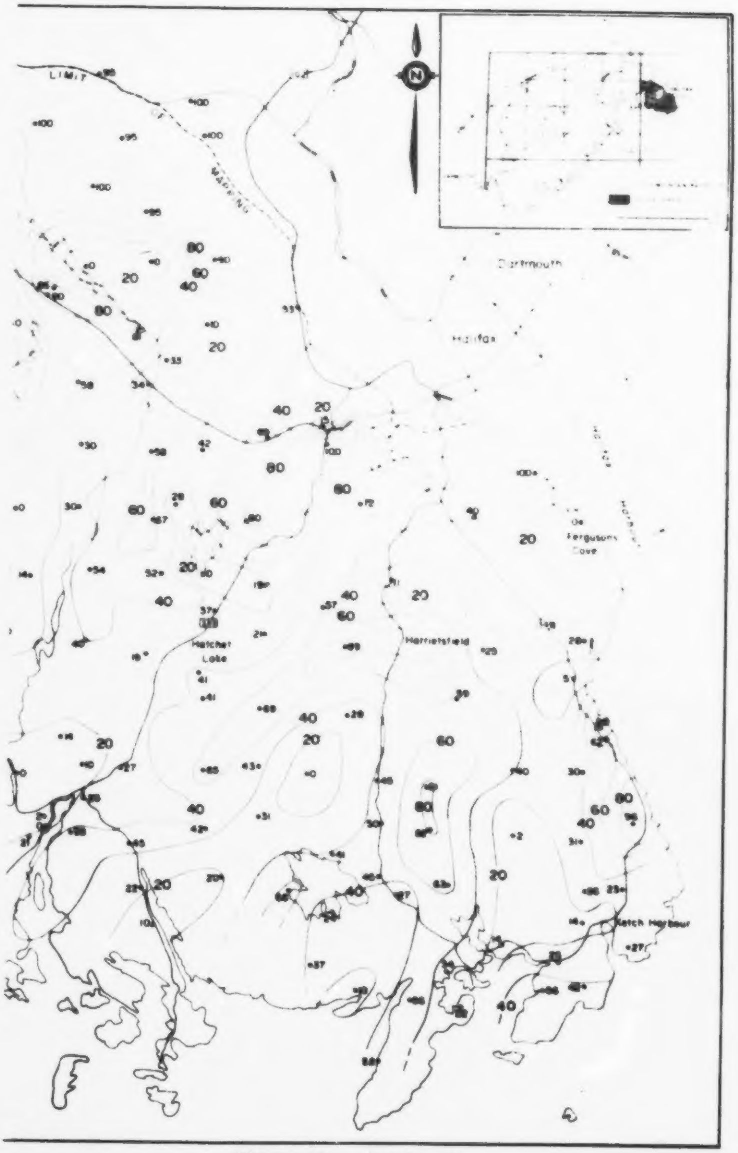
LIMIT OF MAPPING
N
Dartmouth
Halifax
Fergusons Cove
Hatchet Lake
Harrietsfield
Ketch Harbour

Figure 13. Continued.

allochthonous nature is expected to result in a reduced granophile element background when compared with the Granite Tills B and C.

Clasts in Granite Till B show only local dispersal and have a strong correlation with bedrock. As such, till B is considered the most useful as an indicator of underlying bedrock and as a geochemical sampling medium for local mineralization.

Three major striation sets have been recognized. The oldest is southeast and is correlative with Granite Till A. Southward trending striations correspond to Lawrencetown Till and are intermediate in age. The youngest striations trend southwestward and, in part, appear to correlate with Granite Till B.

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STUDIES OF MINERAL DEPOSITS ASSOCIATED WITH THE SOUTH MOUNTAIN BATHOLITH*

G. A. O'Reilly

SUMMARY

South Mountain Batholith mineral deposit studies for 1985 were concentrated in two areas, the Westfield W-Sn-Ag-Au Prospect in Queens County, and the Dean and Chapter Manganese Mine northeast of New Ross, Lunenburg County (Fig. 1).

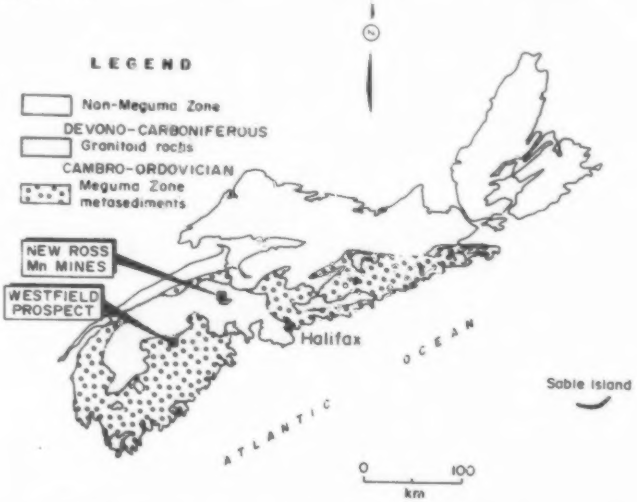
LEGEND
Non-Megumo Zone
DEVONO-CARBONIFEROUS
Granitoid rocks
CAMBRO-ORDOVICIAN
Megumo Zone metasediments
NEW ROSS Mn MINES
WESTFIELD PROSPECT
N
Halifax
ATLANTIC OCEAN
Sable Island
0
100
km

Figure 1. Location map showing the Westfield W-Sn-Ag-Au Prospect and the Dean and Chapter Manganese Mine, southwestern Nova Scotia.

At Westfield, granophile and precious element mineralization occurs within the endo- and exo-contact zone of a lateral protrusion of the South Mountain Batholith. Since 1980 the author has been carrying out geological mapping and geochemical studies in this area. The results are reported in O'Reilly (1985). Early in 1985 Seabright Resources Incorporated completed a program of five diamond-drill holes at this prospect totalling 2215 feet (Fig. 2). The program investigated the Jumbo Vein Zone, a thick northeast trending zone of quartz, and silicified and greisenized metasediments in the exo-contact zone of an albitized and greisenized lateral protrusion of

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Development Agreement

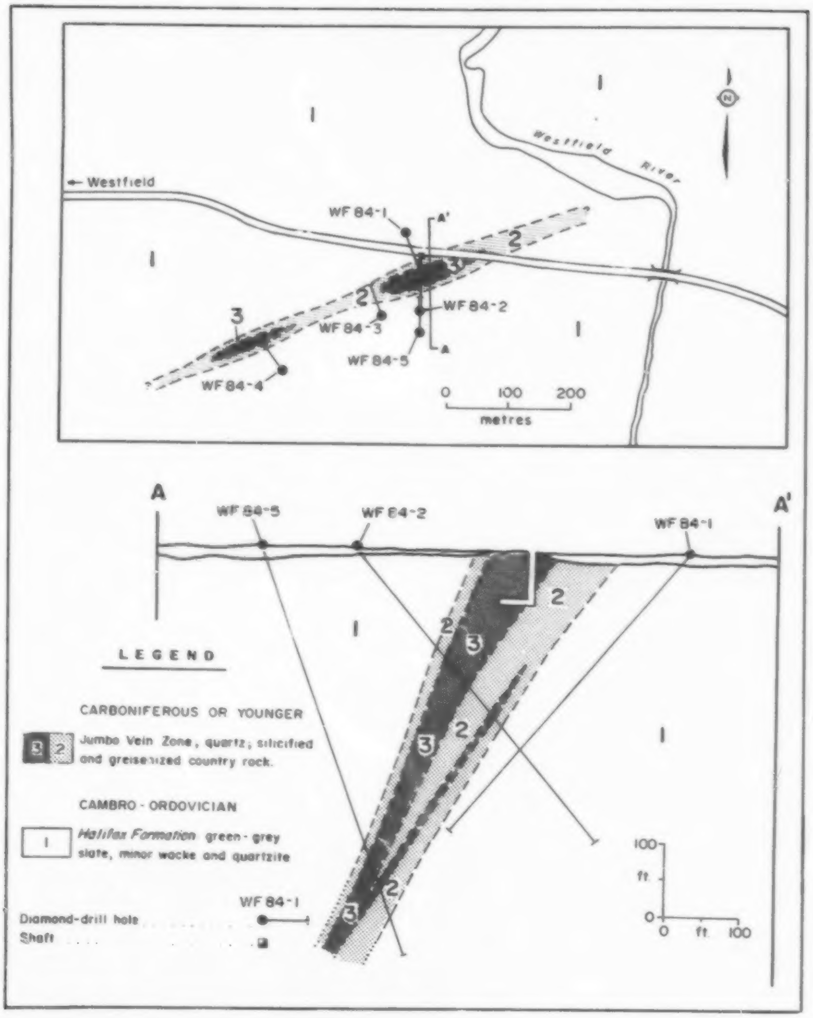
← Westfield
Westfield River
N
WF 84-1
WF 84-2
WF 84-3
WF 84-4
WF 84-5
A
A'
1
2
3
0 100 200
metres
LEGEND
CARBONIFEROUS OR YOUNGER
3 2 Jumbo Vein Zone, quartz; silicified and greisenized country rock.
CAMBRO-ORDOVICIAN
1 Halifax Formation: green-grey slate, minor wacke and quartzite
Diamond-drill hole
Shaft
100 ft. 0
0 ft 100

Figure 2. Geological plan and section of the Jumbo Vein Zone showing location of diamond-drill holes.

the batholith. Past exploration by prospectors and industry and more recent geological investigations by the author indicate the best precious metal potential of this area lies in this and similar zones (O'Reilly, 1985). The diamond-drill program of Seabright has proven the Jumbo Zone extends along strike for 1000 ft to the west of the original test shaft and to a depth of at least 430 ft.

Sample splits from the core will be submitted for major and trace element analyses. The samples are from quartz veins, stockwork zones, and silicified and greisenized varieties of the enclosing Meguma Group slates and wackes. Examination of the geochemical nature and origin of these zones is the prime objective of this geochemical study.

In October, the Nova Scotia Department of Mines and Energy commenced a diamond-drill program at the Dean and Chapter Manganese Mine northeast of New Ross, Lunenburg County (Fig. 1). The program will consist of three holes intended to intersect the mineralized zone(s) at depths of 250, 500 and 1,200 ft (Fig. 3).

These granodiorite hosted manganese deposits are the only past-producing metalliferous mines within the confines of the South Mountain Batholith and were worked to depths of just below 200 ft. Previous workers have often speculated that these vein deposits may transend at deeper levels, into deposits of polymetallic sulphides and(or) granophile elements (Hewett, 1964; Bishop and Wright, 1974; Graves, 1982). The diamond-drill program will test this hypothesis as well as provide complete sections of the mineralized zone(s) and associated haloes for detailed petrological, geochemical and mineralogical studies. At writing, the first two holes have been completed and have successfully intersected and cored the zone at depths of 260 and 555 ft respectively. The remaining hole will be completed early in 1986.

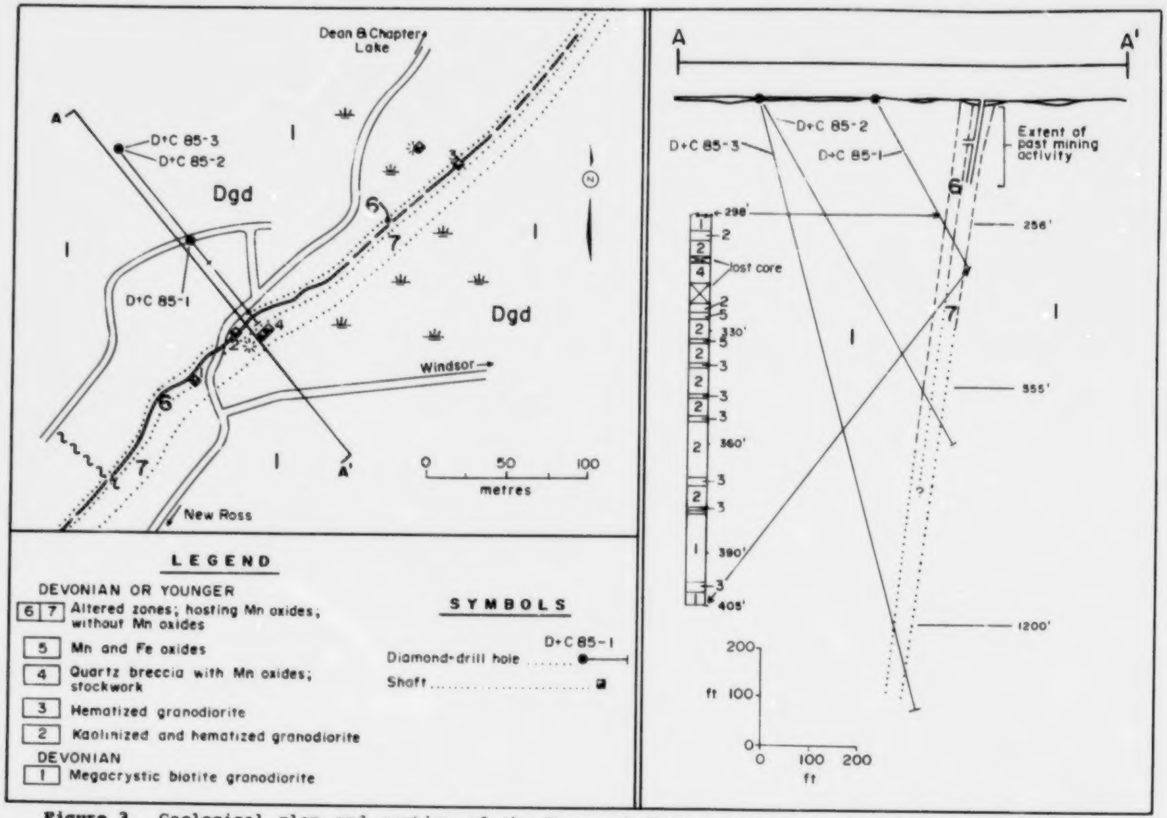
Dean & Chapter Lake
A
A'
D+C 85-3
D+C 85-2
D+C 85-1
Dgd
1
2
3
4
6
7
Windsor
New Ross
0
50
100
metres
LEGEND
DEVONIAN OR YOUNGER
6 7 Altered zones; hosting Mn oxides; without Mn oxides
5 Mn and Fe oxides
4 Quartz breccia with Mn oxides; stockwork
3 Hematized granodiorite
2 Kaolinized and hematized granodiorite
DEVONIAN
1 Megacrystic biotite granodiorite
SYMBOLS
Diamond-drill hole D+C 85-1
Shaft
Extent of past mining activity
298'
lost core
330'
360'
390'
405'
256'
555'
1200'
ft
0
100
200

Figure 3. Geological plan and section of the Dean and Chapter Manganese Mine showing location of diamond-drill holes.

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SURFICIAL MAPPING RESULTS: PICTOU, GUYSBOROUGH AND ANTIGONISH COUNTIES, NOVA SCOTIA*

R. A. Myers and R. R. Stea

INTRODUCTION

This surficial mapping program, carried out under the Canada-Nova Scotia Mineral Development Agreement, is a continuation of a regional mapping and till geochemistry program in northern Nova Scotia initiated in 1981 (Stea and Finck, 1984). The 1985 map area encompasses the Antigonish Highlands and surrounding lowlands in western Pictou County, northern Guysborough County and eastern Antigonish County. This report summarizes field observations with emphasis on the definition of ice flow patterns.

PHYSIOGRAPHY AND GENERAL GEOLOGY

The Antigonish Highlands form the major physiographic region in the study area. The highlands are bounded to the north by the Hollow Fault and to the south by the Cobequid-Chedabucto Fault. The Devono-Carboniferous Antigonish Basin lies to the east (Fig. 1a).

Hadrynian metavolcanics and metasediments comprise the Antigonish Highlands. Lower Paleozoic strata outcrop along the flanks of the highlands and along local fault basins (Murphy, 1984). Cambrian to Devono-Carboniferous intrusives, including syenites, granites, diorites and gabbros are common in the southern part of the highlands and along Cape George. The surrounding lowlands are largely underlain by Devono-Carboniferous sediments with lesser amounts of lower Paleozoic sediments and volcanics present north of the Hollow Fault. The Southern Uplands, in the southern part of the map area, are composed of Cambro-Ordovician slates and greywackes of the Meguma Group which are intruded by Devono-Carboniferous granitic rocks.

EROSIONAL EVIDENCE FOR ICE MOVEMENTS

The direction of movement of ice flow over individual outcrops can be determined by the observation of (1) mini-crag and tail features, (2) stoss and lee form of outcrop, and (3) nail-head striae and crescentic gouges. One hundred and ten striae measurements were taken in the map area during the 1984 and 1985 field season. Seventy-five per cent fall within three broad azimuth groupings (Fig. 2). The relative ages of these striae were determined from key outcrops in which two or more crosscutting sets of striae are present.

OLDEST SOUTHEAST TRENDS

Striae within the 120°-170° grouping are the oldest and probably result from more than one phase of early ice movements (Fig. 1b) although moulding of ice around local topographic highs could account for some of the variation in striation trends. Direct evidence suggesting two early

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*Funded by Nova Scotia Department of Mines and Energy and Geological Survey of Canada under the Canada-Nova Scotia Mineral Development Agreement

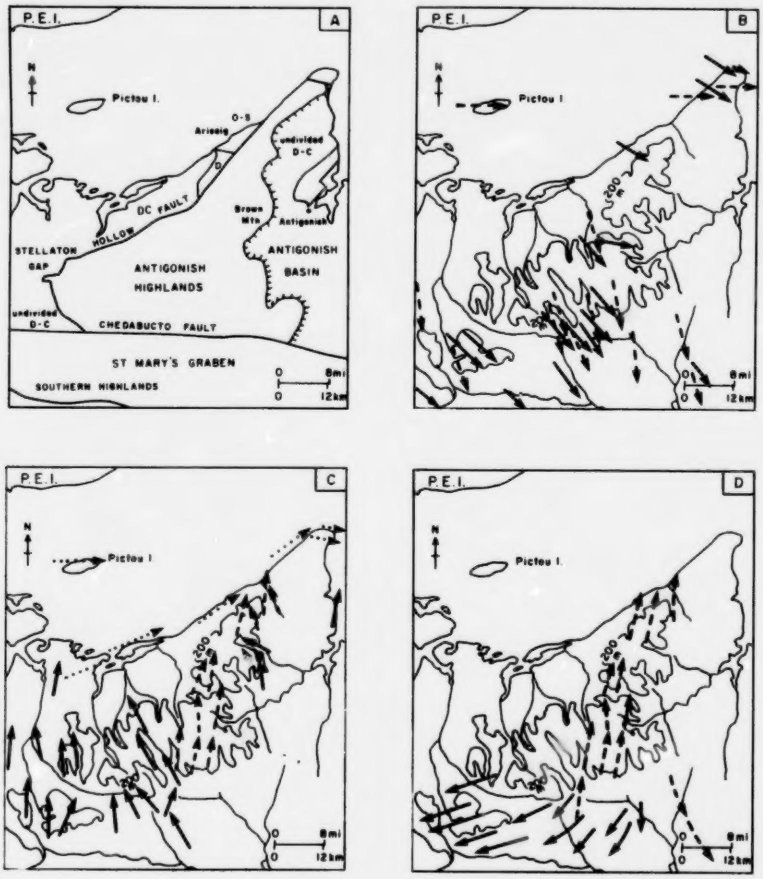
P.E.I.
A
N
Pictou I.
O-S
Arisaig
undivided
D-C
D
DC FAULT
HOLLOW
Brown
Mtn
Antigonish
STELLATON
GAP
ANTIGONISH
HIGHLANDS
ANTIGONISH
BASIN
undivided
D-C
CHEDABUCTO FAULT
ST MARY'S GRABEN
SOUTHERN HIGHLANDS
0
8mi
0
12km
P.E.I.
B
N
Pictou I
200 m
0
8mi
0
12km
P.E.I.
C
N
Pictou I
200
200
0
8mi
0
12km
P.E.I.
D
N
Pictou I.
200
200
0
8mi
0
12km

Figure 1. Inferred ice movements as determined from mini crag and tail and(or) stoss/lee relationships. Relative ages for flows shown with solid arrows were determined by crosscutting striae on key outcrops. Dashed or dotted arrows shown in more than one frame have an uncertain age and may be related to one or more flow events. See text for details.

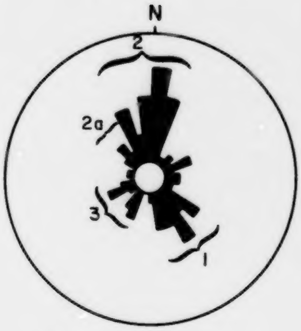

Figure 2. Total striae used to determine sense of direction of ice flow.

flows is limited to three outcrops in the southern highlands where two sets of striae trending 160°-170° and 135°-140° are found. A pyroclastic outcrop just east of Eden Lake has a scoured and polished bedrock surface. On this surface a deep groove, with crag and tail forms trending 138°, is truncated by a surface inscribed with younger striae trending 160°. These striae sets may correlate with ice flow patterns 1 and(or) 2 of Stea and Finck (1984). Eastward trending striae at Cape George are also believed to relate to early ice movement.

INTERMEDIATE NORTHWARD TRENDS

Striae within the 330°-020° grouping may be divided into two regional patterns (Fig. 1c). West of Eden Lake, striae trending northward to northwestward postdate southeastward trending striae. East of Eden Lake, striae trending north-northeast across the Antigonish Highlands may have been formed by divergence of a major northward ice flow stemming from the Southern Uplands (ice flow pattern 3 of Stea and Finck, 1984) or by a separate ice flow centred over the southern Antigonish Highlands. Striae in group 2a (Fig. 2) provide evidence of northwestward ice movement on the southwest flank of Browns Mountain (Fig. 1c). These are correlated with the broad northward ice flow pattern in northern Nova Scotia, although no relative age determinations are available. Northeastward trending striae (indicated by dotted arrows in Fig. 1c), which cut southeastward trending striae at Cape George, are tentatively associated with the regional northward ice flow.

YOUNGEST SOUTHWEST TRENDS

The youngest striae trend west-southwestward in the eastern map area, however the direction swings to the south in the centre of the map area (Fig. 1d). Striae with these trends were not observed in the Antigonish Highlands. The centre of this ice flow may have been in the southern

Antigonish Highlands, where radial flow from this ice cap could also account for northwestward trending striae on the highlands as well as some southeastward trending striae (shown as dashed arrows on Fig. 1d).

SURFACE TILL PROVENANCE AND RELATIONSHIP TO REGIONAL ICE FLOWS

An examination of the relationship between till units and the ice flows which emplaced them awaits the results of pebble counts on some 300 till samples. At present, general observations can be made as follows:

- A reddish brown, compact, stony, silty sand till is locally found lying on the Antigonish Highlands. It rests on bedrock inscribed with northward trending striae. Till fabric measurements indicate this till was formed by northward flowing ice. A very compact, reddish, matrix-rich till overlies bedrock inscribed by southeastward trending striae. In some cases these tills are indistinguishable.
- The surface till sheet in the highlands is a loose, grey stony till comprised primarily of local material. At a few localities this till is observed to overlie the reddish brown stony till described immediately above.
- In areas south of the highlands, distinctive Antigonish Highland erratics found in the surface ablation boulder mantle suggest transport of at least 15 to 20 km by southeast flowing ice.
- North of the Hollow Fault the paucity of highland erractics in the surface ablation boulder mantle may indicate either a lack of erosion by northward flowing ice or a subsequent movement from a direction other than the highlands. Antigonish Highland erratics are abundant in glacio-fluvial deposits north of the Hollow Fault.

CAPE GEORGE COASTAL SECTIONS

Twenty-four coastal sections were measured from Arisaig on the Northumberland Strait to MacIssacs Point. Eleven representative sections are presented in Figure 3. Most of these sections contain a common sequence of stratified drift comprised of sands and a bouldery to gravelly sandy diamict resting on a wave cut bench, believed to be of Sangamonian age (Grant, 1980). Three till units were noted above the bouldery diamict. Two of the till units, overlying the stratified sequence, contain shell fragments of *Mercenaria sp.* which have been dated at greater than 37 000 years B.P. (D. R. Grant, personal communication). These shells were probably entrained in the till as ice moved south to southeast across the Northumberland Strait. A correlation between the tills at Cape George, and their direction and mode of emplacement awaits analysis of till fabrics, local striae data and the results of detailed sampling at four type sections.

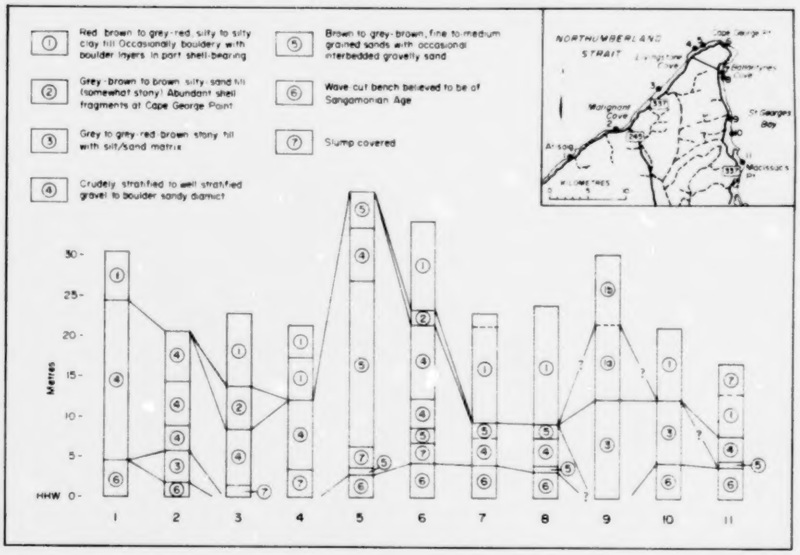
① Red brown to grey-red, silty to silty clay till Occasionally bouldery with boulder layers in part shell-bearing
② Grey-brown to brown silty-sand till (somewhat stony) Abundant shell fragments at Cape George Point
③ Grey to grey-red brown stony till with silt/sand matrix
④ Crudely stratified to well stratified gravel to boulder sandy diamict
⑤ Brown to grey-brown, fine to medium grained sands with occasional interbedded gravelly sand
⑥ Wave cut bench believed to be of Sangamonian Age
⑦ Slump covered
NORTHUMBERLAND STRAIT
Livingstone Cove
Cape George Pt
Ballantynes Cove
Malignant Cove
St Georges Bay
Arisaig
Macissacs Pt
337
245
KILOMETRES
0
5
10
Metres
30
25
20
15
10
5
HHW 0
1
2
3
4
5
6
7
8
9
10
11
?

Figure 3. Sections exposed along the coast in the Cape George area. Datum is the high tide.

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GEOCHEMICAL SURVEYS*

P. J. Rogers and R. Mills

INTRODUCTION

Geochemical surveys and their application within Nova Scotia continued as part of the Canada - Nova Scotia Mineral Development Agreement.

GEOCHEMICAL ATLAS DATABASE

Data from previous surveys, including all commercial exploration geochemistry assessment files, were checked, all sample locations were digitized, and coverage maps at the 1:250 000 scale were produced for stream and lake sediments, and stream and lake waters. Stream and lake sediments, and stream and lake waters data from 1982 and 1983 surveys were checked and prepared for release as open file maps at the 1:50 000 scale (Fig. 1).

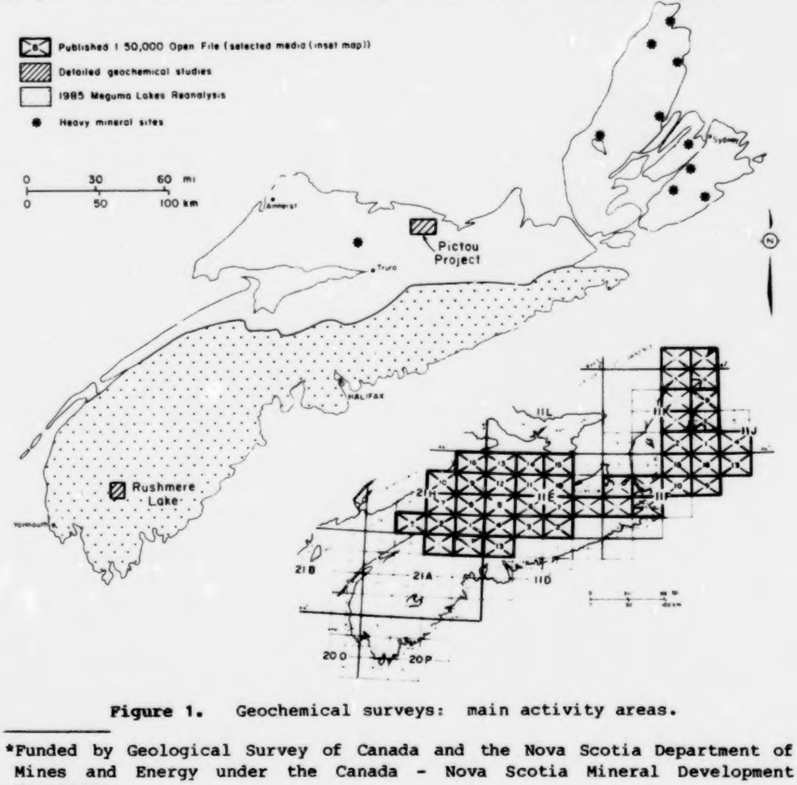
Published 1 50,000 Open File (selected media (inset map))
Detailed geochemical studies
1985 Meguma Lakes Reanalysis
Heavy mineral sites
0 30 60 mi
0 50 100 km
Amherst
Truro
Pictou Project
Sydney
Halifax
Rushmere Lake
Yarmouth
11L
11K
11J
11E
11F
21H
21B
21A
11D
20O
20P

Figure 1. Geochemical surveys: main activity areas.

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*Funded by Geological Survey of Canada and the Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

RUSHMERE LAKE FOLLOW-UP STUDY

A bulk lake sample taken from Moosefly Lake, Yarmouth County (the site of a 32 ppm Sn analysis) contained discrete grains of cassiterite (Rogers and Garrett, in press). A follow-up survey of the tills and streams around Moosefly and Rushmere Lakes was conducted in 1985 to investigate the nature of the anomaly. Unaltered basal till samples were taken from 31 pits, with an average pit depth of one metre, on a 800 m square grid. The till generally is a compacted, coarse sandy till with altered feldspars (sericite).

Stream sediment samples from 12 sites were collected. All samples await analysis for Sn, W, Au, Bi, Sb, Cu, Pb, Zn and Ag.

REANALYSIS OF MEGUMA LAKE SEDIMENTS

Approximately 3400 centre lake bottom samples were analyzed for Cu-Pb-Zn-Ag-Li-F-Nb-Rb-Sn-Zr-Ti-Th-Sb-As-W-Au (Rogers et al., 1985). The data were plotted using an Applicon colour plotter at the 1:500 000 scale. Large-scale geochemical patterns in the Meguma Zone are revealed by these single element plots. The East Kemptville area has significant Sn highs, and there is a strong relationship between the anomalous Sn areas and the South Mountain Batholith (SMB). The W plot shows similar concentrations around East Kemptville and the New Ross-Millet Brook area but differs by having major concentrations in the exo-contact zones of the SMB. Anomalous patterns of W and Au are also related to exo- and endo-contact zones especially in the Musquodoboit Batholith.

PICTOU COUNTY FOLLOW-UP PROJECT

Because of the accidental death of the principal investigator, Ian J. MacEachern, no further field work was done. All 1984 till, stream and soil samples have been submitted for chemical analysis.

As part of a well water orientation survey, well water samples from the Pictou area will be collected to establish groundwater geochemical patterns and its effect on hydromorphic dispersion on the soils from the project area.

REGIONAL HEAVY MINERAL SURVEYS: TO PAN OR NOT TO PAN?

Orientation surveys were conducted on a number of selected mineral showings as a prelude to a full-scale survey (Fig. 1). Heavy minerals in stream sediment systems occur as discrete, resistate mineral grains produced by mechanical weathering. Thus they provide direct indications of metallogenic associations, which is normally investigated indirectly using anomaly patterns based on chemical weathering and hydromorphic dispersions. Gold, cassiterite, wolframite, scheelite, molybdenite and chromite mineralization are best investigated directly rather than relying on secondary dispersion patterns (Levinson, 1980).

In order to correctly identify various metallogenic associations at the regional scale, any geochemical survey must provide province-wide coverage using a quantitative, repeatable sampling technique. To test sampling alternatives of bulk versus panned samples, data from 40 sites sampled in 1983 (Rogers and MacDonald, 1984) were analyzed (Fig. 2). The results for each method are given in Tables 1 and 2.

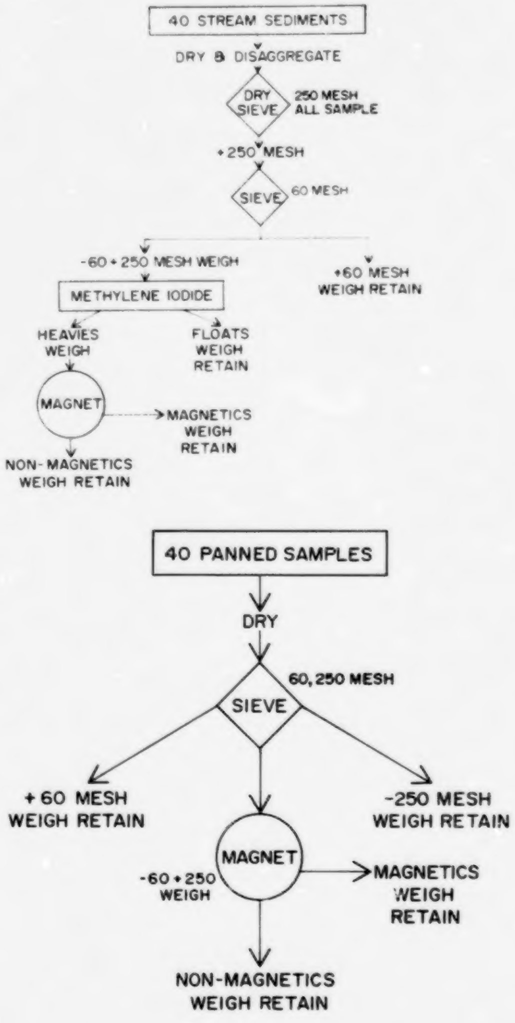
40 STREAM SEDIMENTS
DRY & DISAGGREGATE
DRY SIEVE
250 MESH ALL SAMPLE
+250 MESH
SIEVE
60 MESH
-60+250 MESH WEIGH
+60 MESH WEIGH RETAIN
METHYLENE IODIDE
HEAVIES WEIGH
FLOATS WEIGH RETAIN
MAGNET
MAGNETICS WEIGH RETAIN
NON-MAGNETICS WEIGH RETAIN
40 PANNED SAMPLES
DRY
SIEVE
60, 250 MESH
+60 MESH WEIGH RETAIN
-250 MESH WEIGH RETAIN
MAGNET
-60+250 WEIGH
MAGNETICS WEIGH RETAIN
NON-MAGNETICS WEIGH RETAIN

Figure 2. Testing sampling alternatives.

Table 1. Size Analysis and Heavy Mineral Yields For 1 Kilo Bulk (unpanned) Sample (1 mm Material)

Locality	Sample Number	Weight -60+250 mesh (g)	Weight light minerals (g)	Weight heavy minerals (g)	Weight magnetic minerals (g)	Per cent light minerals	Per cent heavy minerals	Per cent magnetic minerals	Per cent loss material
Durham	2	108.60	105.34	1.39	0.05	97.00	1.28	0.05	0.02
Salt Springs	3	59.20	56.51	0.77	0.02	95.46	1.30	0.03	0.02
Mackay Brook	4	48.40	41.83	5.32	0.11	86.43	10.99	0.23	0.01
Collingwood	5	253.60	239.61	9.16	2.28	94.48	3.61	0.90	0.03
Collingwood	28	462.70	435.22	21.02	6.61	94.06	4.54	1.43	0.00
Bulmer Brook	7	226.96	215.70	8.01	1.80	95.04	3.53	0.79	0.01
Debert Lake	8	227.50	215.70	7.45	1.86	94.81	3.27	0.82	0.02
Debert Lake	9	638.90	617.60	12.04	0.40	96.67	1.88	0.06	0.09
Coxheath	10	66.80	63.16	1.69	0.06	94.55	2.53	0.09	0.02
Coxheath	11	132.70	122.50	3.20	0.10	92.31	2.41	0.08	0.07
Coxheath	12	344.45	327.20	11.91	1.71	94.99	3.46	0.50	0.04
Coxheath	13	212.50	194.40	10.31	0.04	91.48	4.85	0.02	0.08
Coxheath	14	165.80	159.10	4.56	0.05	95.96	2.75	0.03	0.02
Coxheath	15	461.80	437.20	15.28	1.21	94.67	3.31	0.26	0.08
West Gore	16	149.97	141.70	3.67	0.15	94.49	2.45	0.10	0.04
Cumberland	26	285.80	271.50	8.70	1.30	95.00	3.04	0.45	0.04
Londonderry	27	396.34	388.30	4.17	0.65	97.97	1.05	0.16	0.03
Parrsborough	29	217.90	209.00	5.10	0.82	95.92	2.34	0.38	0.03
Parrsborough	30	339.60	326.90	5.46	0.97	96.26	1.61	0.29	0.06
Moose River	31	224.00	217.20	3.17	0.58	96.96	1.42	0.26	0.03
Moose River	32	468.40	459.80	2.97	0.43	98.16	0.63	0.09	0.05
Riverview	33	545.30	528.60	4.96	0.10	96.94	0.91	0.02	0.12
Mount Pleasant	34	508.30	494.20	2.57	0.01	97.23	0.51	0.00	0.12
Sugarloaf	6	253.60	244.60	3.43	0.10	96.64	1.36	0.04	0.05
Sugarloaf	35	925.00	903.30	7.07	0.20	97.65	0.76	0.02	0.14
Sugarloaf	36	967.00	937.00	8.27	0.18	96.90	0.86	0.02	0.22
Sugarloaf	37	580.50	563.70	9.13	0.43	97.11	1.57	0.07	0.07
Sugarloaf	39	462.60	445.70	7.42	0.25	96.35	1.60	0.05	0.09
Sugarloaf	40	313.80	303.90	4.41	0.07	96.85	1.41	0.02	0.05
Sugarloaf	41	215.00	207.50	4.65	0.03	96.51	2.16	0.01	0.03
Sugarloaf	43	322.70	310.40	6.77	0.23	96.19	2.10	0.07	0.05
Sugarloaf	44	203.00	194.90	2.68	0.15	96.01	1.32	0.07	0.05
Sugarloaf	45	284.00	271.10	5.12	0.32	95.46	1.80	0.11	0.07
Sugarloaf	46	815.80	772.70	26.97	0.36	94.72	3.31	0.04	0.16
Faribault Brook	47	280.00	252.40	20.52	2.05	90.14	7.33	0.73	0.05
Faribault Brook	48	367.40	341.40	21.39	3.12	92.92	5.82	0.85	0.01
Faribault Brook	42	92.40	74.46	16.63	3.16	80.58	18.00	3.42	-0.02
Pollets Cove	49	322.20	231.00	85.50	42.50	71.69	26.54	13.19	-0.37
Lochaber	50	373.10	357.00	4.67	0.71	95.68	1.25	0.19	0.11
Cheticamp	38	128.20	114.20	4.10	0.20	89.08	3.20	0.16	0.10

Table 2. Size analysis and heavy mineral yields for panned samples

Locality	Sample number	Total weight sample (g)	Weight +60 mesh (g)	Weight -60+250 mesh (g)	Weight -250 mesh (g)	Weight magnetic minerals (g)	Weight heavy minerals (g)	Per cent +60 mesh	Per cent -60+250 mesh	Per cent -250 mesh	Per cent loss material
Durham	2	208.20	64.33	140.97	2.37	0.08	139.49	30.90	67.71	1.14	0.01
Salt Springs	3	131.32	69.57	60.80	0.52	0.08	59.79	52.98	46.30	0.40	0.00
Mackay Brook	4	190.00	163.41	26.66	0.15	0.11	26.44	86.01	14.03	0.08	0.00
Collingwood	5	260.44	194.36	64.22	0.13	2.60	61.48	74.63	24.66	0.05	0.02
Collingwood	28	57.00	36.81	19.95	0.07	2.28	17.63	64.58	35.00	0.12	0.00
Bulmer Brook	7	268.60	153.58	113.65	0.58	1.71	109.12	57.18	42.31	0.22	0.01
Debert Lake	8	67.92	48.13	19.55	0.01	1.90	17.50	70.86	28.78	0.01	0.00
Debert Lake	9	90.24	67.45	22.56	0.03	0.12	22.31	74.75	25.00	0.03	0.00
Coxheath	10	131.90	118.33	13.20	0.11	0.05	12.38	89.71	10.01	0.08	0.00
Coxheath	11	166.44	142.81	20.09	0.13	0.07	19.80	85.80	12.07	0.08	0.03
Coxheath	12	188.41	157.30	30.70	0.17	0.55	29.05	83.49	16.29	0.09	0.00
Coxheath	13	92.70	68.53	24.57	0.12	0.04	23.68	73.93	26.50	0.13	-0.01
Coxheath	14	134.21	87.20	46.44	0.21	0.04	45.87	64.97	34.60	0.16	0.00
Coxheath	15	176.30	135.65	40.08	0.15	0.42	39.56	76.94	22.73	0.09	0.00
West Gore	16	236.77	235.01	1.60	0.01	0.01	1.57	99.26	0.68	0.00	0.00
Cumberland	26	94.34	75.10	20.07	0.03	1.11	18.86	79.61	21.27	0.03	-0.01
Londonderry	27	119.46	90.36	27.25	1.04	0.39	26.67	75.64	22.81	0.87	0.01
Parrsborough	29	66.88	33.80	32.44	0.33	0.86	29.76	50.54	48.50	0.49	0.00
Parrsborough	30	62.35	43.33	18.75	0.04	0.34	18.28	69.49	30.07	0.06	0.00
Moose River	31	52.42	34.36	17.85	0.01	0.41	17.34	65.55	34.05	0.02	0.00
Moose River	32	77.50	45.83	31.46	0.02	0.31	30.85	59.14	40.59	0.03	0.00
Riverview	33	42.20	20.62	21.22	0.01	0.10	21.07	48.86	50.28	0.02	0.00
Mount Pleasant	34	65.05	38.74	25.67	0.01	0.01	25.40	59.55	39.46	0.02	0.01
Sugarloaf	6	141.91	89.37	51.95	0.10	0.08	51.02	62.98	36.61	0.07	0.00
Sugarloaf	35	149.70	81.74	67.29	0.15	0.15	24.97	54.60	44.95	0.10	0.01
Sugarloaf	36	73.15	28.20	44.27	0.40	0.05	43.61	38.55	60.52	0.55	0.00
Sugarloaf	37	321.76	181.32	134.90	4.86	0.11	131.78	56.35	41.93	1.51	0.01
Sugarloaf	39	336.60	283.51	52.48	0.01	0.07	52.21	84.23	15.59	0.00	0.01
Sugarloaf	40	249.72	238.24	11.10	0.01	0.02	11.04	95.40	4.44	0.00	0.00
Sugarloaf	41	379.82	362.80	10.38	0.05	0.01	16.31	95.52	2.73	0.01	0.07
Sugarloaf	43	151.66	111.35	39.96	0.02	0.12	39.23	73.42	26.35	0.01	0.00
Sugarloaf	44	241.04	88.17	150.73	1.55	0.50	145.60	36.58	62.53	0.64	0.01
Sugarloaf	45	138.82	75.15	63.17	0.01	0.34	62.29	54.13	45.50	0.01	0.00
Sugarloaf	46	241.78	134.19	105.34	0.10	0.06	98.72	55.50	43.57	0.04	0.02
Faribault Brook	47	256.77	249.97	6.23	0.01	0.80	5.42	97.35	2.43	0.00	0.01
Faribault Brook	48	434.23	344.80	85.23	3.47	2.60	82.08	79.40	19.63	0.80	0.01
Faribault Brook	42	233.12	147.71	82.82	0.61	3.13	78.96	63.36	35.53	0.26	0.02
Pollets Cove	49	189.37	179.18	10.12	0.01	0.10	9.90	94.62	5.34	0.01	0.00
Lochaber	50	260.60	211.84	48.55	0.13	10.78	28.56	81.29	18.63	0.05	0.00
Cheticamp	38	149.45	92.63	55.61	0.15	0.44	54.32	61.98	37.21	0.10	0.01

Yields of heavy and light minerals from bulk samples are generally in the range of one to four per cent by weight. Most streams in Cape Breton Island seem to have higher per cent returns, possibly due to a higher hydraulic gradient and therefore more efficient particle movement (Fig. 3). Sampling yields from the more detailed programs at Sugarloaf and Coxheath indicate a constancy of per cent return from each area. This means that the capture of material within each area is more or less equal (Fig. 4).

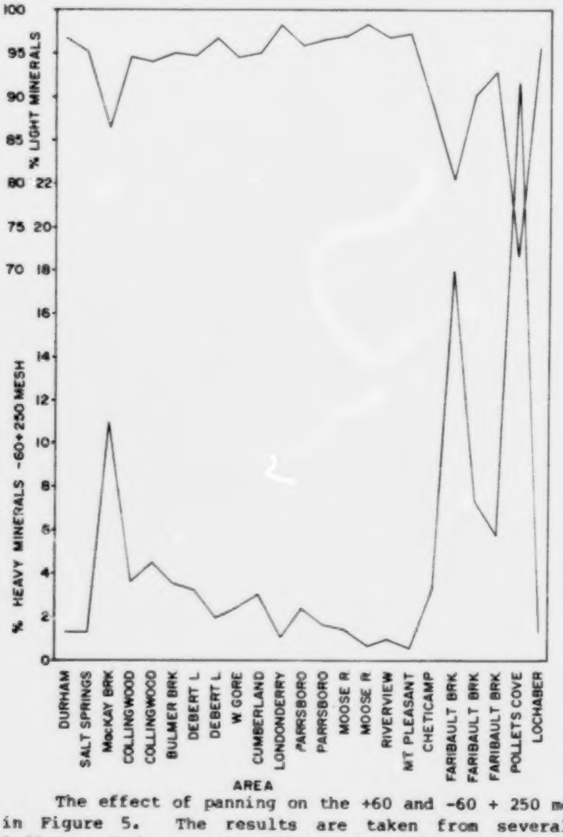

Figure 3. Yields of heavy and light minerals from unpanned samples.

The effect of panning on the +60 and -60 + 250 mesh fractions is shown in Figure 5. The results are taken from several sampling teams and indicate their panning efficiency. The non-parallel behaviour of some samples indicates a loss of the -60 + 250 mesh (fine) fraction. Thus some teams were better at panning than others and illustrates survey planning problem regarding heavy minerals. Some of these problems are given in Table 3.

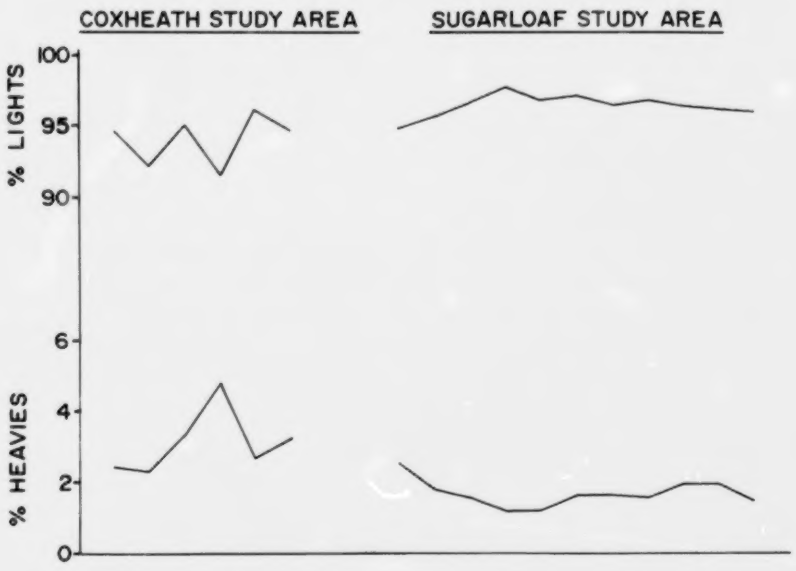

Figure 4. Comparision of yields from sampling same areas (unpanned samples).

The sampling alternatives available for a regional survey must also address the central issue of particle capture of sufficient material (about 10 gms minimum) for reproducible analysis. A conflict arises between the sample size needed and sample collection time, and thus cost of the survey. During 1985, field testing of a multiple sieve set was conducted at selected sites within the Province (Fig. 1). After experimentation a field method involving the collection of three fractions is proposed:

(a)	- 1 mm + 500 µ	coarse material
(b)	- 500 µ + 64 µ	heavy minerals
(c)	- 64 µ	fines

Fraction (a) would not normally be submitted for analysis but retained for anomaly checking at a later stage. Fraction (b) would be the main analytical fraction for resistate mineral anomalies while (c) would provide a check for the more traditional hydromorphic anomalies.

Table 3. Survey panning: to pan or not to pan?

PANNING	BULK SAMPLE
LOSS MATERIAL PROBLEM	POTENTIAL FINES LOSS WET SIEVING
OPERATOR DEPENDENT	OPERATOR INDEPENDENT
HIGHLY SKILLED STAFF NEEDED	EASILY LEARNED, STANDARD APPROACH
VARYING SAMPLE AMOUNTS	CONSTANT AMOUNT TAKEN
QUALITATIVE RESULTS	QUANTATATIVE RESULTS
UNWEIGHTED ANALYTICAL RESULTS	WEIGHTED RESULTS POSSIBLE
TIME PROBLEM, COSTLY	TIME PROBLEM, COSTLY

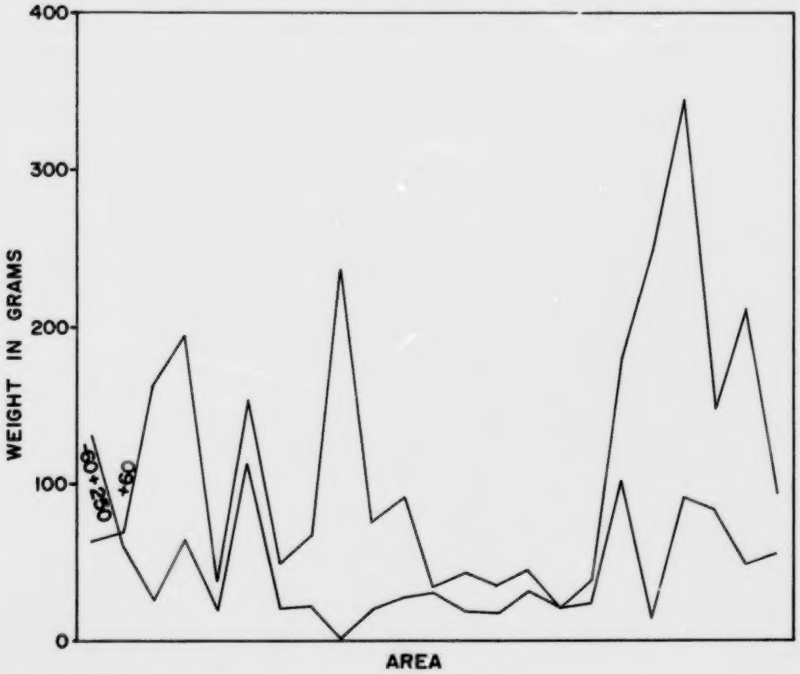

Figure 5. Effect of panning on size fractions: 60 mesh and -60 + 250 mesh.

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MINERAL RESOURCES DIVISON COMPUTER FACILITIES: 1985 REPORT*

D. Rigby

The Interactive Geological Environment (IGE) on the Dalhousie University Cyber computer has been further developed. A description of new or modified programs is given in Table 1. Usage on the Cyber by Division staff doubled between 1983/84 and 1984/85. At the same time, participation in the departmental computer study and the testing of hardware and software, led to the acquisition of a micro-computer as the Division's second workstation. This has ushered in new opportunities for the expanded professional staff. The need to move data between the micro, the IGE Cyber and the Micom stand-alone word processing system of the Division offers new challenges for the coming year.

Table 1. IGE Cyber Programs 1985

Program*	Class**	Inter-active	On Line	Date (Month)	Developed/ Modified
CREDES	1	Yes	Yes	1	D
REFORM	1	Yes	Yes	2	D
SCTREG	4	Yes	Yes	4	M
TEKMODE	6	No	Yes	5	D
COL80/132	6	No	Yes	5	D
PDH	2	No	No	7	D
IDVAL	3	Yes	Yes	9	M
VUPLOT	4	Yes	Yes	10	D
MANVAR	1	Yes	Yes	11	M

*Program:	CREDES	creates new data description file
	REFORM	reformats data; max 290 chars/record; 99 rec/case, 500 cases. (Use REFLON for up to 1000 cases)
	SCTREG	plots scattergram to VT240 screen & Dal plotter
	TEKMODE	change VT240 to tekronics mode
	COL80/132	changes VT240 between 80 and 132 column
	PHD	generates printer file for drillhole data
	IDVAL	evaluate quality of geochemical data
	MANVAR	lists or manipulates data; max 1000 cases

**Class:
1 = Data reformating
2 = Report generation
3 = Statistical analysis
4 = Graphic analysis/display
5 = User maintenance
6 = System maintenance

In addition to system maintenance and software development, the Division programmer provides applications and programming assistance to divisional staff and, when possible, to other professionals within the Department. This may range from enabling a new user to take advantage of the IGE user libraries, to providing advice on how to create powerful command libraries in the Cyber's text editor or assistance in Fortran programming.

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*Funded by Nova Scotia Department of Mines and Energy under the Canada - Nova Scotia Mineral Development Agreement

The Department hired a consultant to help to collectively articulate a five year computer development plan. This provided the Division with an opportunity to develop and share proposals which would provide greater access and more effective computing facilities within the Division and the Department. The study served to broaden the users committee membership and its resolve to tackle the difficult task of developing common formats for data to be shared through several databases. It also served to strengthen the links between the existing word processing and the proposed new data processing systems, and to develop an automated cartographic and spatial analysis capacity within the Department over the next five years.

The Division recommendations for repatriating some of the tasks now done on the Dalhousie Cyber, along with the desire to access more efficient data processing, developed over the year from hands-on experience with a variety of software packages and micro configurations. The configuration acquired as the Division's second workstation reflects both this experience and our participation in the departmental computer study. The hardware consists of an IBM compatible Deskpro III Compaq with 512 K memory, a 10 megabyte hard disk drive, one 360k floppy disk and calendar/clock. The peripherals include a Texas Instrument 865 wide carriage, near letter-quality/graphics printer, a 300/1200 baud General Data Comm auto dial modem and a 10 pen Gould colorwriter plotter capable of plotting with ink drafting pens on 17 by 11 inch mylar film as well as paper and transparencies. The software purchased includes Word Perfect, Lotus 123, Crosstalk, RMF, Dbase 3 and a Microsoft Fortran compiler.

EDUCATION AND PUBLIC AWARENESS*

H. V. Donohoe, Jr. and M. E. Devanney

The two geologists of the Education and Public Awareness Program (EPAP) in the Mines and Minerals Branch are involved in developing a number of informative programs describing the geology and mineral resources of the Province. In addition, the mandate of the Canada - Nova Scotia Mineral Development Agreement (CNSMDA), and its various programs and projects is an important part of the operation of the Program. The CNSMDA Public Information Program is co-ordinated by Howard Donohoe of Nova Scotia Department of Mines and Energy, and federal counterpart, Edward Sampson of Energy, Mines and Resources, Canada. The objectives of the EPAP and Public Information Program of the CNSMDA are to prepare publications, audio-visual presentations and displays that will describe the geology, mineral resources and mining industry of the Province. The CNSMDA programs, their importance and results will also be highlighted. Pamphlets, talks, walks, displays and photographic packages are only some of the endeavors receiving CNSMDA support.

A number of brochures and pamphlets on the topics of the geology of the Halifax - Dartmouth area, and the economic rocks and minerals of the Province are in the preparation stage. Several longer publications in draft form include *Gold in Nova Scotia*, and a revised edition of *Geology, Minerals and Mining in Nova Scotia*. The CNSMDA Identity Package describes MDA programs such as the Mineral Investment Stimulation Program (MISP) and their benefits.

During the summer, many groups have been guided on a walking tour of the building stones in downtown Halifax. This project has been funded by the CNSMDA, and is one of several co-operative projects initiated by the Department and the Nova Scotia Museum. The walk highlights the different types of rocks and minerals used in the building stones as well as the historical development of the building stone industry in the Province. The booklet *A Walking Tour of Rocks, Minerals and Building Stones in Downtown Halifax* describes buildings of interest and includes photos, illustrations and a map which will enable individuals to go on a self-guided tour.

Throughout the summer, booths and displays were prepared for exhibitions at different locations in the Province. Displays emphasized the economic potential of Nova Scotia and the importance of mining to the economy. Maps showed the locations of mines and quarries in the Province, and were correlated to samples of economic rocks and minerals. At Windsor, the theme of the display at the Nova Scotia Forestry Exhibition was "Sharing the Forest - Exploration." The Nova Scotia Mineral and Gem Society hosted the Rockhound Rendezvous in Bedford where the display for the Department emphasized gold in Nova Scotia and panning techniques. At the Rockhound Roundup in Parrsboro, the display highlighted rocks and minerals native to the Province and their economic importance. In New Glasgow at the Careers Fair, the Department, and Communications Energy, Mines and Resources co-operated in producing a display that described work in the geosciences. A display at Mic Mac Mall in Dartmouth attracted a large number of viewers interested in rock and mineral identification, and samples of Nova Scotia rocks and minerals. In addition, the display stressed the importance of the mining industry to the economy of the Province. Samples accompanied by descriptions were distributed at all the displays throughout the summer.

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*Funded by the Nova Scotia Department of Mines and Energy and the Canada - Nova Scotia Mineral Agreement

The Prospecting in Nova Scotia course continues to be popular. During the 1985 spring session at Dalhousie University, thirty people enrolled in the course which was sponsored by the Department, the Chamber of Mineral Resources of Nova Scotia and the Department of Geology at Dalhousie University. The Department and the Chamber, in conjunction with the Colchester - East Hants School Board, sponsored the fall course in Truro. The 130 participants, who have completed the course to date, represent a cross-section of Nova Scotia society and professions, and include thirty per cent women.

Talks and lectures are available to students at the elementary school, high school and university levels, as well as instructional support at the Nova Scotia Universities' field school. In addition, workshops arranged on request provide information on geology and mining to teachers. During the field season, guided walks and field trips available locally and throughout the Province, help to introduce the geology, rocks and minerals of the region.

With the support of the CNSMDA Public Information Program, planned projects include a series of filmstrip presentations outlining the geology, mining and mineral resources of the Province, a photographic record of exploration and mining developments, an advanced prospecting course, video documentaries on the geological development and mineral resources of Atlantic Canada, and newsletters. The Department, under the auspices of the Public Information Program of CNSMDA, has initiated co-operative projects with the Nova Scotia Museum which include collection of specimens of economic rocks and minerals, geological walks, joint publications, and audio-visual presentations with geological themes such as mining.

EMPLACEMENT OF CANADIAN TACONIC ALLOCHTHONS*

J. D. Keppie

ABSTRACT

Emplacement of the Taconic allochthons along the western margin of the Canadian Appalachians appears to have been a two-stage event. The first stage involved north to north-northwest obduction of oceanic lithosphere in an oceanic environment recorded by polyphase deformation and aligned linear structures in the basal ophiolite and uppermost metamorphic aureole. Geochronology indicates that this stage of ophiolite obduction had taken place by about 490 Ma along the entire margin and shortly after formation (500-510 Ma). At this time, the lithosphere was still new, hot, thin and elevated. There followed a period of erosion during which ophiolitic detritus was deposited in the Arenigian continental rise flysch and (Arenig?)-Llanvirn sediments were deposited above the eroded ophiolite. This was followed by the second stage of west to northwest obduction across the continental margin, which took place between Llanvirnian and mid-Carodocian times in Newfoundland and Llandeilan - mid/late Ashgill times in Quebec. While it is clear that ophiolite obduction started during the Penobscot event, it is unclear whether the Penobscot and Taconic are separate events. In a combined Penobscot-Taconic event, subduction would be continuous at one trench, with the direction of relative plate motions changing and erosion temporarily halting nappe movement in some places. Alternatively, as separate events, the Penobscot could be due to terrane amalgamation which eventually choked the subduction zone. This would lead to plate reorganization, creation of a new trench and Taconic obduction.

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*Also *in* Geological Society of America Abstracts with Program, 1985, v. 17, p. 28.

STRUCTURAL DEVELOPMENT OF THE CANADIAN APPALACHIANS*

J. D. Keppie

ABSTRACT

Deformation in the Canadian Appalachians may be broadly grouped into two periods: Hadrynian and Paleozoic, separated by a passive period in the Early to Late Cambrian. The Hadrynian deformation, located in the Avalon Composite Terrane, ranges from localized polyphase deformation (Nova Scotia and parts of New Brunswick) to tilting or may be entirely absent (Newfoundland and parts of New Brunswick). The degree of deformation shows direct correlation with the tectonic setting and proximity to a subduction zone: volcanic arc and interarc basin in Nova Scotia and cratonic rift in Newfoundland. While an upper limit on the age of these structures is sometimes known, the lower limit is generally unconstrained.

The main structural development of the Canadian Appalachians took place between Late Cambrian and Permian times. While convergence was probably continuous, there appear to have been several plate reorganizations during this interval recognized by temporary cessations of deformation associated with erosion, changes in kinematics and rearrangement of tectonic elements. These appear to separate the major deformational events: Penobscotian (Late Cambrian-Early Ordovician), Taconian (Mid-Late Ordovician), Late Caledonian-Early Acadian (Siluro-Devonian), Late Acadian-Hercynian (Late Devonian-Permian). The Penobscot deformation is related to northward obduction of ophiolites with the trench nucleated upon the mid-oceanic ridge. The Taconian deformation is related to southeast or east subduction of cratonic North America, which eventually choked the subduction zone. The Late Caledonian-Early Acadian deformation is related to northwest to west subduction, and accretion of Baltica and the Avalon Composite Terrane. The Late Acadian-Hercynian deformation is related to east subduction and collision of Gondwana.

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*Presented at the Atlantic Geoscience Society Annual Meeting, 1985, Wolfville, Nova Scotia

ACCRETIONARY DEFORMATION: CANADIAN APPALACHIAN EXAMPLES*

J. D. Keppie

ABSTRACT

In a plate tectonic regimen, deformation is generally most intense at or near plate margins where it is continuous until relocated by plate organization. However, at any one locality, deformation may cease even during one plate regimen. Thus, structures formed at an active margin gradually migrate to inactive areas. At rift margins, primary fabrics and faults are conveyed as new lithosphere is accreted. At transform boundaries, complex polyphase structures formed in the active segment pass into fracture zones. At subduction margins, the zone of active deformation migrates as progressive underplating occurs beneath the obducted plate. The style of deformation at such boundaries depends upon the polarity of subduction. Thus, the subducting plate suffers intense thrusting and associated folding during accretion, whereas the over-riding plate is relatively free of deformation until accretion of buoyant terranes resist subduction and results in fault-related deformation. During continuous subduction, deformation may also cease at one location as a result of many other factors, e.g. increase in friction, erosion, nappe superposition. Thus, cessation of deformation in one area is not an unique property of plate reorganization. Other factors are needed to discriminate e.g. changes in kinematic vectors and spatial distribution of tectonic elements. In the Canadian Appalachians, deformation related to subduction is dominant and lasted from Late Cambrian to Permian times. The major deformational events (Penobscotian, Taconian, Acadian, Hercynian) appear to be related to specific plate regimes separated by plate reorganization.

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*Also *in* Geological Association of Canada Program with Abstracts, 1985, v. 10, p. A30

BASE METAL OCCURRENCES IN CARBONIFEROUS ROCKS, SYDNEY AREA, NOVA SCOTIA*

*R. V. Kirkham*** *and R. C. Boehner*

Minor base metal sulphide occurrences are widely distributed in Carboniferous rocks of the Sydney area. Extensive but thin zones of low-grade disseminated sulphides occur along the oxidation-reduction contact of the marine Windsor Group with underlying Horton Group redbeds. Base metal sulphides occur also in stratigraphically higher Windsor Group limestones and some grey clastic units, especially where these are interbedded with redbeds. In addition base metal sulphides occur associated with Windsor Group celestite and barite deposits in the Loch Lomond basin and in Canso and Morein Group sandstones at Salmon River and Leitches Creek, respectively.

These copper-lead-zinc occurrences are apparently products of diagenetic migration of metalliferous brines through permeable sediments, and precipitation of the metals at favourable sites. They occur characteristically at oxidation-reduction boundaries, stratigraphic pinchouts and unconformities. Because these occurrences are scattered over wide stratigraphic intervals and in a variety of stratigraphic settings, a question to be answered is whether they were formed by mineralizing processes long after the sediments were deposited or whether they were formed during or soon after sedimentation by repeated mineralizing events.

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GEOLOGY AND MINERAL DEPOSITS OF CARBONIFEROUS SUCCESSOR BASINS, EASTERN CAPE BRETON ISLAND, NOVA SCOTIA*

R. C. Boehner

The Sydney Basin, Glengarry Half Graben and Loch Lomond Basin are weakly deformed structural basins comprising up to 4000 m of Tournaisian-Early Permian molassic strata. They are bordered on one or more sides by major northeastward trending faults and complex basement blocks (Hadrynian-Devonian). The basins represent portions or onshore extensions of larger depocentres that were dislocated by syn- and post-Carboniferous wrench faults.

The diversity, evolution and interaction of the tectonic setting, depositional environment, climate and basin architecture as well as basement rock composition governed the distribution and origin of numerous sediment-hosted mineral deposits. Primary deposits of salt, potash and coal reflect mainly depositional and tectonic factors. Cu, Pb, Zn, Fe and Mn frequently occur in the vicinity of red-ox boundaries at or near the basin margins especially where progressive onlap onto basement rocks has allowed extended erosion and weathering processes to release and transport metals. Coincident juxtaposition of suitable host lithology at this regional unconformity including organic-rich porous marine carbonate rocks and reduced coaly sandstone, locally allowed trapping and concentration of economic mineral deposits. Diagenetic replacement celestite and barite mineralization occurs in a similar stratabound setting especially at the interface between continental siliciclastics and marine carbonate ± evaporites. Reconstruction of basin geometry and the resulting facies mosaic can identify areas with unrealized mineral potential.

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*Presented at Geological Association of Canada - Mineralogical Association of Canada Joint Meeting, 1985, Fredericton, New Brunswick

THE PETROLOGY, GEOCHEMISTRY, AND ECONOMIC POTENTIAL OF THE MUSQUODOBOIT BATHOLITH, NOVA SCOTIA*

*M. A. MacDonald and D. B. Clarke***

ABSTRACT

The Musquodoboit batholith of southwestern Nova Scotia is a massive, post-tectonic granitoid intrusion that was emplaced into the regionally deformed and metamorphosed Meguma Group metasedimentary rocks. The batholith is composed primarily of medium- to coarse-grained monzogranites into which two small (≈ 1 km^2) porphyries and numerous dykes have been injected. All rocks contain quartz, alkali feldspar, plagioclase, muscovite, and biotite (with the exception of some leucocratic dykes). Cordierite is a major constituent in most monzogranitic rocks and also occurs in some leucocratic dykes. Andalusite and garnet are also present as accessory phases in some rocks.

Major-element chemical analyses indicate that all rock types in the Musquodoboit batholith are peraluminous. Compositions resemble those of the eastern part South Mountain batholith, however, slightly higher concentrations of Al_2O_3 and P_2O_5 distinguish the Musquodoboit batholith from the central part of the South Mountain batholith. Major and trace element data indicate that magmatic differentiation has operated; however the decrease in $\sum$ 8 REEs, Th/U, and K/Rb from monzogranite to dyke rocks suggests that stripping by hydrothermal fluids has also occurred.

Various field, petrographic, and geochemical data yield equivocal estimates of the economic potential of the Musquodoboit batholith.

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LITHOPHILE ELEMENTS AND EXPLORATION USING CENTRE-LAKE BOTTOM SEDIMENTS FROM THE EAST KEMPTVILLE AREA, SOUTHERN NOVA SCOTIA*

*P. J. Rogers and R. G. Garrett***

ABSTRACT

The East Kemptville tin deposit in southwestern Nova Scotia was discovered in 1978 by Shell Canada Resources, Limited, using regional till exploration. In 1977 and 1978, southern Nova Scotia was covered by a regional centre-lake bottom sediment survey (1 site per 5 km^2) for Cu-Pb-Zn-Ag-Ni-Co-Fe-Mn-Ca-Mg-Mo-Hg-As-U-LOI. Detailed lithogeochemical studies on drill core from East Kemptville have demonstrated significant roles for the elements Zn-Cu-Th-Li-F-Sn-Cl-Rb in the hydrothermal mineralization. Most of these significant mineralizing elements were not analyzed as part of this survey.

To test the applicability of using these lithophile elements in the regional centre-lake bottom sediment geochemical programs, a subset of 55 lake sediment samples from the deposit area was analysed for Sn, Rb, F and Cl. Sn values were found to range from 1 to 32 ppm, Rb from 10 to 207 ppm, F from 25 to 410 ppm, and Cl from 240 to 1660 ppm. All of the anomalous values of F, Rb and Sn form a distinct halo of elevated levels southwest, southeast and northeast of the East Kemptville deposit, which appears to lie in an area of background values. The detailed till sampling done by Shell at East Kemptville for Sn, W, Cu and Zn provides a control as to the probable source of the material found in the centre-lake bottom sediments.

The main economic mineralization at East Kemptville comprises chalcopyrite, sphalerite, cassiterite and wolframite, both the latter two minerals contributing to the Sn and W till anomalies. Heavy minerals were separated from a bulk lake sediment sample from Moosefly Lake (the site of the 32 ppm Sn value from the regional survey subset) using methylene iodide. Spot analysis by scanning electron microscope indicates the presence of angular and discrete grains of cassiterite in the centre-lake bottom sediment, in addition to numerous grains of zircon, monazite and magnetite.

The Sn anomaly in the centre-lake bottom sediment is due at least in part to the presence of discrete cassiterite grains. The lack of abrasion would seem to indicate derivation from the nearby known cassiterite-rich tills. The lack of correlation of Sn data with organic material (as LOI) and the other elements probably indicates the dominance of mechanical over chemical dispersion processes in moving Sn from the tills to the lake environment.

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Refractory mineral phases in the lake sediments from East Kemptville produced the Sn anomalies, whilst the F, Cl and Rb are more likely to be associated with clay or silt particles from the till. In either case, anomalous areas were identified using these lithophile elements in centre-lake bottom sediments. The presence of the Sn anomaly, and confirmation of cassiterite in the centre-bottom organic-rich lake sediments, is evidence that clastic dispersion processes should be taken into account when interpreting lake sediment data. A common dispersion model is one of initial glacial clastic dispersion, followed by subsequent hydromorphic dispersion into the lake basins. Now whilst still recognizing the dominance of hydromorphic processes, it is clear that clastic dispersion models must be considered. It also follows that centre-lake bottom surveys may have greater application than previously presumed in the search for lithophile elements commonly dispersed as refractory grains.

CATCHMENT BASIN ANALYSIS APPLIED TO SURFICIAL GEOCHEMICAL DATA, COBEQUID HIGHLANDS, NOVA SCOTIA*

*G. F. Bonham-Carter**, P. J. Rogers and D. J. Ellwood***

ABSTRACT

Areal proportions of mapped lithologic units are used as independent variables in a regression equation to predict the element content of stream sediments. Geochemical variation due to average differences in chemical composition between lithologic units is removed from the data, highlighting anomalies due to mineralization and to secondary processes active in the surficial environment. For the Cobequid Highlands lithologic effects explain between 30% and 65% of the variance, depending on the element chosen. The effects of scavenging metal ions by Fe and Mn in the secondary environment are also removed by regression. Co, Ni and As show particularly strong associations with Fe and Mn.

Regression experiments also show that if geologic map units are recorded as present or absent (1 or 0) in each basin, instead of using area measurements, the proportion of variance explained is almost as large. However, using only the most areally abundant unit in each basin results in about 25% less efficient prediction and similar results are obtained using only the presence of the map unit closest to each sample point.

Co-occurrence of certain map units in a catchment basin appears to be a relatively important factor for predicting Zn. Co-occurrence of units is represented in the regression equation by using cross-products of lithologic variables in presence/absence form.

A method for obtaining a weighted mean and weighted dispersion for the element contents characterizing each map unit is proposed. These values are more easily interpreted than those from regression coefficients, which suffer from very large variances for map units which cover only small areas.

A catchment basin map showing positive Zn anomalies after removing geological background and secondary effects due to Fe and Mn scavenging is shown as a grey-tone image, using a percentile scale. Digitization of geologic and catchment basin maps allows routine production of colour or grey-tone images depicting measured or derived geochemical parameters and provides a powerful tool for geochemical exploration.

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*Presented at Eleventh International Geochemical Exploration Symposium, April 28 - May 2, 1985, Toronto, Ontario

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GEOCHEMICAL CHARACTERISTICS OF THE POLYMETALLIC TIN DOMAIN, SOUTHWESTERN NOVA SCOTIA*

*A. K. Chatterjee and D. F. Strong***

Exploration for base metals in southwestern Nova Scotia in 1976 resulted in the discovery of polymetallic tin mineralization in Cambro-Ordovician flyschoid metasedimentary rocks. Subsequently Shell Minerals discovered the East Kemptville tin deposit in granitoid rocks of the South Mountain batholith, some 40 km away from the initial discovery area. Rio Algom (the present owner) confirmed the possibility of economic recovery of tin from the ore, thus establishing North America's first primary tin deposit. The tin production from East Kemptville as projected would contribute approximately 8.3 per cent of the global bedrock tin production, thus ranking third behind Bolivia and Australia (Fig. 1). The present paper deals with the geochemical characteristics (major, trace and REE elements, and oxygen and lead isotopes) and the metallogenetic evolution of the polymetallic tin domain in southwestern Nova Scotia.

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*Also *in* Granite-Related Mineral Deposits: Geology, Petrogenesis and Tectonic Setting, eds. R. P. Taylor and D. F. Strong; Canadian Institute of Mining and Metallurgy Conference on Granite-Related Mineral Deposits, September 1985, Halifax, Canada, p. 41-52.

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REVIEW OF SOME CHEMICAL AND MINERALOGICAL CHARACTERISTICS OF GRANITOID ROCKS HOSTING Sn, W, U, Mo DEPOSITS IN NEWFOUNDLAND AND NOVA SCOTIA*

A. K. Chatterjee and D. F. Strong

SYNOPSIS

Granite-related mineral deposits in the Appalachian orogen range from skarns and porphyry-type copper deposits of Gaspe through metal-deficient fluorite veins at St. Lawrence, complex subvolcanic tungsten-molybdenum polymetallic deposits at Mount Pleasant, tin (-copper) at East Kemptville, hydrothermal uranium at Millet Brook, tungsten-bearing quartz veins at Grey River and Burnt Hill, antimony-bearing quartz veins at Lake George, pyrophyllite deposits at Foxtrap, and numerous other deposit types with other characteristics. This range in deposit types is also characterized by variations in the host granitoid rocks which we illustrate by rare earth element geochemistry of the bulk rocks (altered, unaltered and mineralized) and by chemistry of the phyllosilicates. The REE geochemistry is dominantly affected by the hydrothermal processes, but the phyllosilicate compositions appear to also exhibit characteristics which relate to the magma types and possible source rock characteristics.

The aim of this review is to compare and contrast a range of mineral deposit types associated with granitoid rocks in the Canadian Appalachians and put them into an overall geological context, and provide an indication of some of the geochemical and mineralogical data which are helpful in understanding the processes which control their formation and provide some guides to exploration. Studies of these deposits have ranged through a variety of techniques from isotopic to fluid inclusion studies to whole rock and mineral chemistry, but because of space limitations this review will focus on the available rare earth and phyllosilicate data, as the former provide some indication of the hydrothermal processes involved during deposition, and the latter give an indication of the different source materials from which the granitoid rocks and by implication their mineral deposits were derived.

Granitoid plutons show systematic groupings and patterns of variation across mountain belts, and these have been related to the same plate tectonic processes which explain most large-scale geological phenomena. The apparent success of these interpretations also led early workers to draw similar conclusions relating Appalachian granites to subduction processes (Strong et al., 1974), and this has been done more recently for Caledonian granites of Britain (Brown and Hennessay, 1978). However recent studies of circum-Pacific granitoid rocks have shown that there is an even more important common thread to their origins, namely that they ultimately reflect compositions of the source rocks from which they were derived.

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*Also *in* High Heat Production (HHP) Granites, Hydrothermal Circulation and Ore Genesis, eds. R. Taylor and D. F. Strong; The Institution of Mining and Metallurgy, Cornwall England, 1985, p. 489-516.

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This approach has led to new classifications of granitoid rocks, like that of Chappel and White (1974), who subdivided granites of eastern Australia into two types, *S* and *I*, formed from sedimentary and igneous sources, respectively. This classification was further modified by Loiselle and Wones (1979) who added *A-types* for the post-tectonic (anorogenic) alkaline granites derived from continental crust, and by Pitcher (1983) who added *M-type* for the granites of island arc regions which were mantle-derived. Source controls were also emphasized by Ishihara (1977), who divided Japanese granites into a *magnetite-series* and an *ilmenite series*, the former supposedly mantle-derived and the latter derived from more reducing, carbon-bearing sedimentary sources. Gastil (1975) showed that granites of Baja California have differing compositions depending on their derivation from continental margin or island arc source materials.

Similar conclusions have been reached by Fyfe and Pajari (1981), Strong (1980), and Strong and Wones (1980) for the granitoid rocks of the Appalachians. An important feature to recognize with regard to Paleozoic granitoid rocks and their associated mineral deposits in the Appalachians is that they were virtually all intruded during the 100 Ma period from Silurian to Carboniferous. That is, they were intruded following the closure of the Iapetus (Proto-Atlantic) ocean, and they cut and link the various tectonostratigraphic zones or terranes. It is therefore unlikely that they were in any way related to subduction processes analogous to those inferred for circum-Pacific batholiths. It is further evident that these characteristics are more readily related to the type of crust in which they are found, and the tectonic setting during their emplacement is more likely to have been one of transpression or megashear (Strong, 1982). The late Precambrian (Pan-African) plutonic rocks of the Avalon Zone appear to be shallow sub-volcanic intrusions, but their tectonic setting and petrogenesis is still poorly understood.

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PHYSICAL AND CHEMICAL PROCESSES IN THE SOUTH MOUNTAIN BATHOLITH*

*D. B. Clarke** and A. K. Chatterjee*

INTRODUCTION

From the initiation of emplacement of a granitoid batholith, to its final attainment of physical (thermal and gravitational) and chemical (effective cessation of chemical reactions) 'equilibrium' in its new surroundings, probably takes many millions of years and involves numerous processes along the way. Table 1 outlines some of the processes for which

Table 1. A framework for discussing the physical and chemical processes in the emplacement and solidification of the South Mountain Batholith.

	MAGMATIC		POST-MAGMATIC	
	Physical	Chemical	Physical	Chemical
REGIONAL	1	3	5	7
	stoping convection conduction injection gravity settling volatile release	differentiation	contraction jointing uplift	hydrothermal alteration
LOCAL	2	4	6	8
	flowage differentiation diapirism	assimilation contamination	inversion ductile deformation (shearing) brittle deformation (brecciation)	exsolution specialization mineralization weathering

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*Also *in* Granite-related Mineral Deposits; Geology, Petrogenesis and Tectonic Setting, eds. R. P. Taylor and D. F. Strong; Canadian Institute of Mining and Metallurgy Conference on Granite-related Mineral Deposits, Halifax, Nova Scotia, 1985, p. 58-62.

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evidence exists in the South Mountain Batholith (SMB). To a large extent the tripartite subdivision involving magmatic vs. post-magmatic, physical vs. chemical, and regional vs. local processes is both arbitrary and artificial in what is really a continuum of processes, but it serves as a conceptual framework for this contribution. By putting the processes first and foremost, we hope to shed a new insight into what is already becoming a very well known peraluminous granite complex. Thus, we propose to examine systematically each of the processes for which solid evidence exists in the SMB, and indicate, wherever relevant, what the importance of these processes has been in the development of mineral deposits.

RARE EARTH ELEMENTS AND OXYGEN ISOTOPIC SIGNATURES FOR THE DISTRIBUTION, MOBILIZATION AND CONCENTRATION OF URANIUM IN THE SOUTH MOUNTAIN BATHOLITH, NOVA SCOTIA*

*A. K. Chatterjee and D. F. Strong***

INTRODUCTION

Variation in rare earth element concentrations is becoming increasingly recognized as a means of detecting and understanding the subtle effects of processes responsible for mineralization in deposit types ranging from volcanogenic massive sulphide (Campbell et al., 1982; Strong, 1984) to porphyry copper (Taylor and Fryer, 1982), greisen-type tin (Chatterjee and Strong, 1984a) and tungsten (Higgins, 1980) deposits, and sediment-hosted uranium deposits (McLennan and Taylor, 1979). As it appears that no such studies have yet been done for vein-type uranium deposits associated with granitoid rocks, the present contribution deals with the behaviour of REEs during the magmatic and post-magmatic hydrothermal events related to uranium mineralization in the granitoid rocks of the South Mountain Batholith of Nova Scotia. It also examines the possibility of REE mobilization, uranium enrichment and interaction between the granitoid rocks and the mineralizing fluids of various origin on the basis of whole rock $^{18}O/^{16}O$ measurements.

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UPPER CARBONIFEROUS SEDIMENTATION IN NORTHERN NOVA SCOTIA AND THE ORIGIN OF STELLARTON BASIN*

*G. M. Yeo***

ABSTRACT

Stellarton Gap, a partly fault-bounded depression underlain by Carboniferous strata, separates the major basement complexes of northern Nova Scotia, the Cobequid and Antigonish highlands. Sedimentation in Stellarton Gap was largely controlled by fault movement. Late Carboniferous strike-slip movement resulted in a pull-apart graben, the Stellarton Basin. During the initial stages of basin subsidence, alluvial fan and fluvial clastics of the Cumberland Group (Westphalian B) were shed into Stellarton Gap from the northwest and south. Subsequently, fine grained clastics and organic material accumulated as the Stellarton Group (Westphalian B and C) in restricted lakes of Stellarton Basin. Simultaneously, Pictou Group sands were deposited in eastern Cumberland Basin by braided rivers flowing north and east. Cessation of strike-slip movement ended subsidence of Stellarton Basin, but Pictou sedimentation continued, eventually burying at least part of the basin.

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GRANITOID PLUTONS IN THE CANSO AREA, NOVA SCOTIA*

*J. D. Hill***

ABSTRACT

The Canso area is underlain by metasedimentary rocks of the Meguma Group and numerous granitoid plutons of probable Devonian age. Deformation and metamorphism that reached amphibolite grade affected the Meguma Group during the Acadian Orogeny whereas a younger heterogeneous dextral shearing event (or events) affected both the Meguma Group and the granitoid plutons in most of the area.

The granitoid plutons, ranging in composition from biotite tonalite to muscovite granite, were emplaced in a relatively stable tectonic environment after the Acadian Orogeny. At least seven stages of magma emplacement have been recognized, which resulted in the intrusion of more than twenty plutons. The lack of correspondence between pluton age and composition indicates that magmas were generated during more than one phase of partial melting.

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PRELIMINARY REPORT ON THE GEOLOGY OF THE MAHONE BAY AREA, NOVA SCOTIA*

*B. H. O'Brien***

ABSTRACT

The Mahone Bay area in Lunenburg County, Nova Scotia is underlain by Cambro-Ordovician metasediments, Lower Carboniferous limestones and evaporites and Devono-Carboniferous granitoids. The Cambro-Ordovician Meguma Group is separated into three formations and six members. Together they are approximately 13 km thick. Lateral facies variations and stratigraphical thickening and thinning of map units are however, common.

Rocks of the Meguma Group are folded about variably plunging, northeast trending major folds. Individual folds are mapped for many tens of kilometres and change their shape in different units along the axial trace. Fractures are present in Meguma Group metasediments, Windsor Group limestones and Devono-Carboniferous granitoids. Some are occupied by veins or intrusions.

Regional metamorphism of the Meguma Group is in the lower greenschist facies but contact metamorphism near the granitoids produces an amphibolite facies hornfels.

Quartz veins at various structural and stratigraphical positions in the Meguma Group contain Au, W and Cu. Stratiform laminae in the Moshers Island Member are rich in Mn.

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STRUCTURAL SETTING OF THE MILE LAKE GOLD PROSPECT, GUYSBOROUGH COUNTY, NOVA SCOTIA*

*S. J. Haynes**, B. A. Reilly** and L. A. Kiely***

ABSTRACT

Combined regional and detailed mapping of the Mile Lake area indicates that the early Paleozoic Meguma Group has suffered polyphase deformation and metamorphism. A comparison of regional geological studies with recent airborne vertical magnetic gradient maps confirmed the presence of a major synclinorium of Meguma Group sediments, and several parallel fold structures, that join the Forest Hill and Country Harbour gold districts in an area previously considered to be occupied by a large granitoid pluton.

Mineralogical studies indicate that gold at Mile Lake is restricted to microscopic inclusions in arsenopyrite-rich areas of the quartz veins. Crystalloblastic arsenopyrite grains were fractured during a D_3 deformation event, while gold, pyrrhotite, chalcopyrite, sphalerite and galena were deformed by ductile flow.

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WILLEMITE AND NATIVE SILVER OCCURRENCES, KIRKMOUNT, PICTOU COUNTY, NOVA SCOTIA*

A. L. Sangster**

ABSTRACT

Willemite and native silver have been identified in calcite veins cutting Precambrian James River Formation argillite and greywacke near Kirkmount in the Antigonish Highlands. Both of these occurrences are unusual, not only for Nova Scotia, but elsewhere. They are thought to be related to relatively young (late Paleozoic to early Mesozoic) faults that might be part of the Cobequid-Chedabucto fault system. The willemite-ferruginous-manganiferous carbonate assemblage is similar to assemblages elsewhere that are considered to be of supergene origin.

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ISOTOPE AND HYDROCARBON STUDIES OF THE YAVA SANDSTONE-LEAD DEPOSIT, CAPE BRETON ISLAND, NOVA SCOTIA: A PROGRESS REPORT*

P. D. Vaillancourt** and D. F. Sangster**

ABSTRACT

The Yava deposit occurs in an Upper Carboniferous fluviatile sandstone above an unconformity on lower Carboniferous sedimentary rocks and a Devonian intrusion. Yava is located along the southeast margin of Salmon River Basin within Fundy Basin. The deposit consists of three zones of disseminated galena each overlying a basement depression and separated from the adjacent zones by an intervening basement high.

Reflectance values of vitrinite are higher in the Yava area than in the rest of the Salmon River Basin. Sulphur isotope values show a wide spread similar to other continental sandstone-hosted deposits. Lead isotopes indicate that ore leads are homogeneous whereas rock leads are heterogeneous.

The initial findings, together with other evidence not reported here, support a groundwater genetic model for Yava. The high vitrinite values are considered to be formed from oxidation of coal, the sulphur isotope patterns are typical of deposits formed by the circulation of meteoric groundwaters and the lead isotope values in ore galenas suggest derivation of lead from feldspars in the adjacent quartz feldspar porphyry.

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GEOLOGY OF THE SOUTHWESTERN ANTIGONISH HIGHLANDS, NOVA SCOTIA*

*J. B. Murphy***

ABSTRACT

The southwestern Antigonish Highlands are predominantly underlain by late Precambrian felsic to mafic volcanics and interlayered mudstones. This area is lithologically similar to the southern highlands but contrasts with younger late Precambrian rocks of the northern highlands. (Georgeville Group) which consist of turbidites and mafic volcanics.

Mapping in summer 1984 indicates that the contact between northern and southern sequences is transitional, that the Keppoch Formation is the oldest formation in the Georgeville Group, and that the entire sequence represents the progressive opening of a sedimentary basin.

Upper Ordovician-Silurian sequences consisting of bimodal volcanics and fluviatitle to shallow marine sediments preferentially occur near fault zones. Pervasive shearing is common and is probably mid-Devonian (Acadian).

New localities containing pyritic zones have been found. They occur in both Precambrian and Ordovician-Silurian felsic volcanics. They may be stratabound, intrusive-related, fault-related or associated with the contact between subaerial and submarine volcanics.

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UPPER CARBONIFEROUS STRATA OF THE TATAMAGOUCHE SYNCLINE, CUMBERLAND BASIN, NOVA SCOTIA*

*R. J. Ryan***

ABSTRACT

Geological investigations indicate that the Upper Carboniferous strata of the Tatamagouche Syncline can be divided into eight map units based on their lithologies and relative abundances.

Alluvial fans developed in the southern part of the study area originating from pre-Carboniferous rocks. In the north and central parts of the area sand and mud were deposited along low sinuosity, anastomosing rivers. In the eastern part of the Tatamagouche Syncline, strongly unimodal paleocurrent measurements indicate flow to the north-northwest. In the western part of the area, crossbeds on the northern limb of the syncline indicate flow to the south and east, suggesting that diapirism of the Windsor Group evaporites may have been contemporaneous with sedimentation.

Copper, silver, zinc, lead and uranium occurrences are numerous and are usually associated with carbonaceous conglomerates and sandstones within the channel lags.

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GEOLOGY OF THE WESTERN ANTIGONISH HIGHLANDS, NOVA SCOTIA*

*J. B. Murphy***

ABSTRACT

The western Antigonish Highlands are underlain by two sequences; Precambrian turbidites and minor volcanics of the Georgeville Group unconformably overlain by Upper Ordovician to Lower Devonian successions consisting of bimodal volcanics and fossiliferous siliciclastics. These sequences are similar to those described in the southern Antigonish Highlands. Upper Ordovician-Lower Devonian rocks belong to the Arisaig Group and constitute an overstep sequence onto the Antigonish Terrane.

Faults are common. They comprise northeast (dextral) and northwest (sinistral) conjugate transcurrent faults and associated thrusts that are probably due to the interaction of the Chedabucto Fault to the south and the Hollow Fault to the north. Movement on these is thought to be Middle to Late Devonian in age, and they may reflect the docking of the Meguma Terrane along the Chedabucto Fault.

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GEOLOGICAL MAPPING AND IGNEOUS AND METAMORPHIC PETROLOGY, QUEENS AND SHELBURNE COUNTIES, NOVA SCOTIA*

*T. L. Hope*** *and S. L. Woodend****

ABSTRACT

The Cambro-Ordovician turbiditic Meguma Group has been deformed and regionally metamorphosed during the Acadian Orogeny producing upper greenschist to middle amphibolite facies schists and granofels. The intrusion of the Devonian Port Mouton Pluton further increased metamorphic grade around its margins to sillimanite zone assemblages. The Pluton contains at least nine identifiable units which range in composition from tonalite to granite, and display abundant crosscutting relationships.

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GEOCHEMICAL CHARACTERIZATION OF THE GOLDENVILLE-HALIFAX TRANSITION OF THE MEGUMA GROUP OF NOVA SCOTIA: PRELIMINARY REPORT*

M. Zentilli**, M. C. Graves**, T. Mulja** and I. MacInnis**

ABSTRACT

The Moshers Island Member of the transition between the sandy Goldenville and shaly Halifax Formations of the Cambro-Ordovician Meguma Group appears to be a significant control for metal concentration. In the LaHave River area it is preferentially enriched in Mn, Ba, Pb, Cu and Zn over other members of the Goldenville-Halifax transition zone. This paper characterizes the lithochemistry of the transition zone and gives credence to the concept that metal enrichment at this horizon may be a regional phenomenon with metallogenetic and exploration significance.

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LATE CARBONIFEROUS DEXTRAL MOVEMENT ON THE COBEQUID - HOLLOW FAULT SYSTEM, NOVA SCOTIA: EVIDENCE AND IMPLICATIONS*

*G. M. Yeo*** *and G. Ruixing***

ABSTRACT

The offset of Devonian volcanics along the Cobequid Fault and Silurian strata along the Hollow Fault indicates a displacement of 20 to 35 km. Deformation and orientation of secondary faults and folds within Stellarton Graben are indicative of a large-scale, dextral, Riedel shear pattern. In response to movement on these fault systems, the Stellarton Graben developed as a synsedimentary rhomb graben in late Westphalian B-C time. Since the deposition of the Stellarton Group was contemporaneous with graben subsidence, it is unlikely that the coal seams known within the graben ever extended outside it (with the possible exception of the Thorburn coals). Juxtaposition of predominantly fluvial facies belonging to the Pictou Group against time-correlative, predominantly lacustrine facies belonging to the Stellarton Group can be explained by dextral faulting. Since the Stellarton Graben was probably not in existence in early Westphalian B time, it could not have been an obstacle to derivation of the New Glasgow Conglomerate from a southern source area.

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GEOLOGY OF THE NORTHERNMOST CAPE BRETON HIGHLANDS, NOVA SCOTIA*

*R. P. Raeside**, S. M. Barr**, C. E. White** and F. A. R. Dennis***

ABSTRACT

Geological mapping in the northernmost Highlands of Cape Breton Island during the summer of 1985 has shown that the area can be divided into two zones of different lithologic character but both consisting mainly of rocks of inferred Precambrian age. The bulk of the area, west of a fault zone in the valleys of Wilkie and Grays Hollow brooks, is composed of felsic and mafic gneisses and varied plutonic rocks, including anorthosite, monzodiorite, syenite and granite. East of the fault zone the diversity of lithologic types is less extreme and the rocks consist predominantly of felsic gneisses and schists (characterized by high-pressure regional metamorphic mineral assemblages indicating bathozone 5), and felsic granitoid rocks. Other units in the map area include volcanic and sedimentary rocks of the Devono-Carboniferous Fisset Brook Formation and sedimentary rocks of the Carboniferous Horton and Windsor groups.

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APPENDIX I

OPEN ASSESSMENT REPORTS FOR 1985

OPEN ASSESSMENT REPORTS FOR 1985

11D/11C 21-H-09(03)

GOLD, COW BAY, HALIFAX COUNTY, NOVA SCOTIA. R. PETERS. REPORT ON TRENCHING, GROUND MAGNETIC SURVEY AND VLF INTERPRETATIONS, BY R. PETERS, 1983. 71 PAGES; 5 MAP(S) (MAGNETIC, GROUND); MAGNETIC PROFILES; VLF PROFILES

11D/11C 21-H-39(13)

GOLD, LAWRENCETOWN, HALIFAX COUNTY, NOVA SCOTIA. JACQUES, WHITFORD AND ASSOCIATES LIMITED (FOR C. E. RICHARDSON AND VIRTUS MINING GROUP). REPORT ON GEOLOGY, SURFACE GRAB SAMPLING AND DRILLING, BY J. A. AMIRAULT, 1983. 40 PAGES; 3 MAP(S) (DRILLHOLE LOCATION MINE SURFACE PLANS; PROPERTY LOCATION; ROCK GEOCHEMICAL); CROSS-SECTIONS. DRILLHOLE LOGS

11D/11D 21-H-27(02)

GOLD, LAKE CATCHA, HALIFAX COUNTY, NOVA SCOTIA. N. DAMBERGS. PROSPECTOR'S NOTES, BY N. DAMBERGS, 1984. 1 PAGE; 1 MAP (PROPERTY LOCATION)

11D/12C 51-H-95(02)

TIN, TANTALLON, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED AND NORTHEAST EXPLORATION SERVICES LIMITED (FOR ESSO RESOURCES CANADA LIMITED). REPORT ON GEOLOGICAL AND TILL GEOCHEMICAL SURVEYS AND TRENCHING, BY J. L. MACLEOD, 1983. 40 PAGES; 7 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; TILL GEOCHEMICAL); CROSS-SECTIONS; HISTOGRAMS

11D/13A 21-H-73(12)

GOLD, WAVERLEY, HALIFAX COUNTY, NOVA SCOTIA. W. E. LOCKHART. REPORT ON PROSPECTING, BY W. E. LOCKHART, 1983. 1 PAGE; 1 MAP (PROPERTY LOCATION)

11D/13A 41-H-102(01)

SILICA, POWDERMILL LAKE, HALIFAX COUNTY, NOVA SCOTIA. S. L. EDMONDS. REPORT ON SCUBA DIVING OBSERVATIONS OF LAKE-BOTTOM SILICA DEPOSITS, BY S. L. EDMONDS, 1984. 5 PAGES; 1 MAP (PROPERTY LOCATION)

11D/13C 21-I-27(08)

GOLD, MOUNT UNIACKE, HANTS COUNTY, NOVA SCOTIA. FIRST EASTERN GOLD DEVELOPMENT INCORPORATED. REPORT ON GEOLOGY, MINING HISTORY AND EXPLORATION PROPOSAL, BY J. S. AMOS, 1974. 13 PAGES; 1 MAP (PROPERTY LOCATION)

11D/13C 21-I-27(09)

GOLD, MOUNT UNIACKE, HANTS COUNTY, NOVA SCOTIA. OUTLAND RESOURCES CORPORATION. REPORT ON GEOLOGICAL, SOIL GEOCHEMICAL AND GROUND VLF SURVEYS,

11D/13D 21-H-53(22)

GOLD, OLDHAM, HALIFAX COUNTY, NOVA SCOTIA. G. COLE. PROSPECTOR'S REPORT ON TRENCHING AND MILLING OF ORE, BY G. COLE, 1983. 3 PAGES; 2 MAP(S) (PROPERTY LOCATION; TRENCH LOCATION)

11D/14D 21-H-50(01)

GOLD, MURCHYVILLE, HALIFAX COUNTY, NOVA SCOTIA. C. W. PURCELL. PROSPECTOR'S REPORT, BY M. A. ORMAN, M. BLANK, 1983. 2 PAGES; 1 MAP (PROPERTY LOCATION)

11D/15A 21-H-67(22)

GOLD, TANGIER, HALIFAX COUNTY, NOVA SCOTIA. REPORT ON MINING HISTORY, STRUCTURE AND A DESCRIPTION OF THE ROSS MINE, BY W. H. PREST, 1899. 15 PAGES

11D/15A 21-H-67(23)

GOLD, TANGIER, HALIFAX COUNTY, NOVA SCOTIA. TANGIER MINING AND POWER COMPANY LIMITED. REPORT ON GEOLOGY, ORE CHARACTER AND ORIGIN, STRUCTURE, MINING AND MILLING METHODS, DEVELOPMENT AND RECOMMENDATIONS, BY A. L. SCHNEIDER, K. G. CHISHOLM, 1927. 59 PAGES; 3 MAP(S) (MINE LEVEL PLANS); MINE CROSS-SECTIONS

11D/15A 21-H-67(24)

GOLD, TANGIER, HALIFAX COUNTY, NOVA SCOTIA. NOVA SCOTIA GOLD MINES LIMITED. SUMMARY REPORT ON DEVELOPMENT, MILLING METHODS AND MILL OPERATING COSTS, BY A. L. SCHNEIDER, 1936. 3 PAGES

11D/15A 21-H-67(25)

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11D/15B 07-H-97(02)

BASE METALS, SHIP HARBOUR, HALIFAX COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED, NORTHEAST EXPLORATION SERVICES LIMITED AND EASTERN GEOPHYSICS LIMITED (FOR BILLITON CANADA LIMITED). REPORT ON GEOLOGICAL, GROUND MAGNETIC, GROUND VLF AND IP SURVEYS, BY G. MACGILLIVRAY, 1983. 8 PAGES; 5 MAP(S) (EM, GROUND; GEOLOGICAL; MAGNETIC, GROUND; PROPERTY LOCATION); PSEUDO SECTIONS

11D/15B 07-H-97(03)

BASE METALS, SHIP HARBOUR, HALIFAX COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED. REPORT ON GEOLOGICAL, BOULDER MAPPING AND TILL GEOCHEMICAL SURVEYS

AND TRENCHING, BY G. MACGILLIVRAY, 1983. 44 PAGES; 14 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; TILL GEOCHEMICAL; TILL TYPE; TRENCH GEOLOGY); GEOCHEMICAL PROFILES; HISTOGRAMS

11D/15B 21-H-29(06)

GOLD, LAKE CHARLOTTE, HALIFAX COUNTY, NOVA SCOTIA. E. A. HART (FOR FIRST CANADIAN GOLD CORPORATION INCORPORATED). REPORT ON EXPLORATION AND DEVELOPMENT HISTORIES, GEOLOGY AND VEIN SAMPLING, BY E. A. HART, 1972. 12 PAGES

11D/15B 21-H-29(07)

GOLD, LAKE CHARLOTTE, HALIFAX COUNTY, NOVA SCOTIA. FIRST CANADIAN GOLD CORPORATION INCORPORATED. REPORT ON EXPLORATION AND DEVELOPMENT HISTORIES, BULK SAMPLING AND RECOMMENDATIONS, BY T. SKIMMING, 1974. 11 PAGES; 2 MAP(S) (MINE LEVEL PLANS; PROPERTY LOCATION); MINE CROSS-SECTIONS

11D/15C 21-H-47(08)

GOLD, MOOSELAND, HALIFAX COUNTY, NOVA SCOTIA. J. E. DAWE (FOR A. THOMPSON). REPORT ON GEOLOGY, PROPSECTING AND SAMPLING, BY J. E. DAWE, 1983. 9 PAGES; 4 MAP(S) (PROPERTY LOCATION; ROCK SAMPLE LOCATION)

11D/15C 21-H-49(06)

GOLD, MOOSE RIVER, HALIFAX COUNTY, NOVA SCOTIA. S. H. LIVELY (FOR E. E. MARTIN). REPORT ON SURVEYING OF PROPERTY, BY H. S. LIVELY, 1978. 2 PAGES; 1 MAP (SURVEY)

11D/15C 51-H-98(01)

TIN, TANGIER GRAND LAKE, HALIFAX COUNTY, NOVA SCOTIA. KIDD CREEK MINES LIMITED. REPORT ON GEOLOGICAL, ROCK, TILL AND HEAVY MINERALS GEOCHEMICAL SURVEYS, BY D. R. DUNCAN, 1983. 24 PAGES; 11 MAP(S) (GEOLOGICAL; HEAVY MINERALS GEOCHEMICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION)

11D/15C 51-H-98(02)

TIN, TANGIER GRAND LAKE, HALIFAX COUNTY, NOVA SCOTIA. KIDD CREEK MINES LIMITED. REPORT ON PROSPECTING AND ROCK GEOCHEMISTRY, BY D. R. DUNCAN, 1984. 14 PAGES; 4 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION)

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11D/16C 21-H-23(11)

GOLD, HARRIGAN COVE, HALIFAX COUNTY, NOVA SCOTIA. HARRIGAN MINING ASSOCIATES. REPORT ON GEOLOGICAL AND BIOGEOCHEMICAL SURVEYS, BY W. A. MACPHERSON, 1983. 12 PAGES; 4 MAP(S) (BIOGEOCHEMICAL; MINE SURFACE PLANS; PROPERTY LOCATION); MINE CROSS-SECTIONS

11D/16C 21-H-63(18)

GOLD, SALMON RIVER, HALIFAX COUNTY, NOVA SCOTIA. TRI-BRIDGE CONSOLIDATED GOLD MINES LIMITED. SUMMARY REPORT ON GEOLOGY AND PROPOSED EXPLORATION PROGRAM, BY W. WALKER, 1973. 13 PAGES; 2 MAP(S) (PROPERTY LOCATION)

11E/01A 21-G-17(16)

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11E/01A 21-G-30(05)

GOLD, LISCOMB MILLS, GUYSBOROUGH COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON GEOLOGICAL, SOIL AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BY A. B. HUDGINS, 1984. 5 PAGES; 3 MAP(S) (PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT SAMPLE LOCATION; STRUCTURAL; TILL SAMPLE LOCATION)

11E/01A 21-G-31(08)

GOLD, MILLER LAKE, GUYSBOROUGH COUNTY, NOVA SCOTIA. OUTLAND RESOURCES CORPORATION (FOR M.E.X. EXPLORATIONS LIMITED AND OUTLAND RESOURCES CORPORATION). REPORT ON GEOLOGICAL, ROCK AND SOIL GEOCHEMICAL SURVEYS AND GROUND VLF SURVEY, BY D. FORGERON, 1983. 24 PAGES; 6 MAP(S) (MINE SURFACE PLANS; PROPERTY LOCATION; SOIL GEOCHEMICAL; VLF, GROUND)

11E/01A 21-G-31(09)

GOLD, MILLER LAKE, GUYSBOROUGH COUNTY, NOVA SCOTIA. OUTLAND RESOURCES CORPORATION (FOR M.E.X. EXPLORATIONS LIMITED AND OUTLAND RESOURCES CORPORATION). REPORT ON GEOLOGICAL, SOIL AND ROCK GEOCHEMICAL SURVEYS AND GROUND VLF SURVEY, BY D. FORGERON, 1983. 24 PAGES; 6 MAP(S) (MINE SURFACE PLANS; PROPERTY LOCATION; SOIL GEOCHEMICAL; VLF, GROUND)

11E/01A 21-G-31(10)

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11E/01D 21-G-05(16)

GOLD, COCHRANE HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. CONSOLIDATED CANADIAN FARADAY LIMITED (FOR COCHRANE HILL SYNDICATE). REPORT ON DRILL CORE GEOCHEMISTRY, BY J. R. BRIDGER, 1975. 2 PAGES

11E/01D 21-G-05(17)

GOLD, COCHRANE HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. COCHRANE HILL GOLD SYNDICATE. REPORT ON CHARACTER OF MINERALIZATION, BY S. BURR, 1975. 1 PAGE; 1 MAP (GEOLOGICAL); CROSS-SECTIONS

11E/01D 21-G-05(18)

GOLD, COCHRANE HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. OUTLAND RESOURCES CORPORATION. REPORT ON GEOLOGICAL, SOIL GEOCHEMICAL AND GROUND VLF SURVEYS, BY D. FORGERON, 1983. 20 PAGES; 7 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; SOIL GEOCHEMICAL; VLF, GROUND)

11E/01D 21-G-05(19)

GOLD, COCHRANE HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. PETER MALTBY AND ASSOCIATES (FOR NORTHUMBERLAND MINES LIMITED AND GOLDENVILLE EXPLORATIONS LIMITED). REPORT ON NEW TECHNIQUES TO RECOVER GOLD, BY PETER MALTBY AND ASSOCS, 1983. 14 PAGES

11E/02A 21-H-01(07)

GOLD, BEAVER DAM, HALIFAX COUNTY, NOVA SCOTIA. M.E.X. EXPLORATIONS LIMITED. REPORT ON PROSPECTING AND GROUND VLF SURVEY, BY L. D. RANKIN, 1983. 9 PAGES; 3 MAP(S) (DRAINAGE; PROPERTY LOCATION; TOPOGRAPHIC; VLF LINES LOCATION; VLF, GROUND)

11E/02B 21-H-00(01)

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11E/02B 21-H-07(19)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. REPORT ON THE ROSS MINE, BY E. H. WAIT, 1939. 2 PAGES

11E/02B 21-H-07(20)

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11E/02B 21-H-07(21)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED. SUMMARY REPORT ON MINING AND DEVELOPMENT HISTORIES, BY T. G. HOWE, 1947. 13 PAGES

11E/02B 21-H-07(22)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED. SUMMARY REPORT ON MINING AND DEVELOPMENT HISTORIES, BY T. G. HOWE, 1947. 13 PAGES

11E/02B 21-H-07(23)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. G. FRASER. PROSPECTOR'S NOTES, BY G. FRASER, 1984. 2 PAGES; 1 MAP (PROPERTY LOCATION)

11E/02B 21-H-07(24)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. JAMES E. TILSLEY AND ASSOCIATES (FOR JOHN LOGAN ENTERPRISES LIMITED AND LAKEMINE RESOURCES INCORPORATED). REPORT ON GEOLOGY, HISTORY OF DEVELOPMENT AND EXPLORATION POTENTIAL, BY J. E. TILSLEY, 1983. 44 PAGES; 5 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; MINE LEVEL PLANS; MINE SURFACE PLANS; PROPERTY LOCATION); MINE CROSS-SECTIONS

11E/02B 21-H-07(25)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. JAMES E. TILSLEY AND ASSOCIATES LIMITED (FOR LAKEMINE RESOURCES INCORPORATED AND JOHN LOGAN ENTERPRISES LIMITED). REPORT ON GEOLOGY, GROUND MAGNETIC AND GROUND VLF SURVEYS, BY J. E. TILSLEY, 1983. 16 PAGES; 4 MAP(S) (GEOLOGICAL; MAGNETIC, GROUND; PROPERTY LOCATION; VLF, GROUND)

11E/02B 21-H-07(26)

GOLD, CARIBOU, HALIFAX COUNTY, NOVA SCOTIA. TRI-EXPLORATIONS LIMITED. PROSPECTING REPORT, BY J. E. DAWE, A. THOMSON, 1984. 3 PAGES; 1 MAP (PROPERTY LOCATION)

11E/02C 21-H-71(01)

GOLD, UPPER MUSQUODOBOIT, HALIFAX COUNTY, NOVA SCOTIA. FIRST CANADIAN GOLD CORPORATION INCORPORATED. REPORT ON GEOLOGY AND PROPOSED EXPLORATION PROGRAM, BY T. SKIMMING, 1974. 8 PAGES; 2 MAP(S) (GEOLOGICAL; PROPERTY LOCATION)

11E/02D 21-H-13(14)

GOLD, FIFTEEN MILE STREAM, HALIFAX COUNTY, NOVA SCOTIA. PROSPEX INCORPORATED (FOR PAN EAST RESOURCES INCORPORATED). REPORT ON BIOGEOCHEMICAL SURVEY, BY C. MILLER, 1983. 10 PAGES; 2 MAP(S) (BIOGEOCHEMICAL; PROPERTY LOCATION)

11E/02D 21-H-13(15)

GOLD, FIFTEEN MILE STREAM, HALIFAX COUNTY, NOVA SCOTIA. PAN EAST RESOURCES INCORPORATED AND PROSPEX INCORPORATED (FOR SULPETRO MINERALS LIMITED). REPORT ON BIOGEOCHEMICAL SURVEY, BY C. MILLER, 1983. 5 PAGES; 2 MAP(S) (BIOGEOCHEMICAL; PROPERTY LOCATION)

11E/02D 21-H-13(16)

GOLD, FIFTEEN MILE STREAM, HALIFAX COUNTY, NOVA SCOTIA. PROSPEX INCORPORATED (FOR PAN EAST RESOURCES INCORPORATED). REPORT ON GEOLOGICAL SURVEY, BY C. MILLER, 1983. 10 PAGES; 3 MAP(S) (BIOGEOCHEMICAL; GEOLOGICAL; PROPERTY LOCATION)

11E/03A 41-H-20(03)

SILICA, ELMSVALE, HALIFAX COUNTY, NOVA SCOTIA. L. E. SHAW LIMITED. REPORT ON DRILLING, BY S. SMITH, 1983. 27 PAGES; 1 MAP (DRILLHOLE LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS

11E/03B 21-D-11(01)

GOLD, COLDSTREAM, COLCHESTER COUNTY, NOVA SCOTIA. PAN EAST RESOURCES INCORPORATED AND SANDER GEOPHYSICS LIMITED (FOR PAN EAST RESOURCES INCORPORATED). REPORT ON AIRBORNE VLF AND AIRBORNE MAGNETIC SURVEYS, BY C. MILLER, 1982. 10 PAGES; 4 MAP(S) (MAGNETIC; AIRBORNE; PROPERTY LOCATION; VLF, AIRBORNE)

11E/03B 27-H-14(34)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED. THREE DRILLHOLE SECTIONS MISSING FROM NSDME ASSESSMENT REPORT 11E/03B 27-H-14(25), BY IMPERIAL OIL LIMITED, 1974, BY W. B. BURTON, 1974. DRILLHOLE SECTIONS

11E/03B 27-H-14(35)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED. REPORT ON THE HYDROLOGICAL ENVIRONMENT, BY D. M. MCKEE, P. J. HANNON, 1982. 20 PAGES; 3 MAP(S) (PROPERTY LOCATION; SEDIMENT TYPE; SURFICIAL GEOLOGICAL; WELL WATER SAMPLE LOCATION); BLOCK DIAGRAMS; CROSS-SECTIONS; PHOTOGRAPHS; SEDIMENT PROPERTIES GRAPHS; STRATIGRAPHIC CHARTS

11E/03B 27-H-14(36)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED AND CANADA WIDEMINES LIMITED. REPORT ON THE GAYS RIVER CONCENTRATOR, BY J. YEE, T. O'KRONEG, 1980. 22 PAGES

11E/03B 27-H-14(37)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED AND CANADA WIDEMINES LIMITED. REPORT ON RECLAMATION PROPOSALS, BY ESSO RESOURCES CANADA LIMITED, 1981. 49 PAGES; 1 MAP (MINE RECLAMATION)

11E/03B 27-H-14(38)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. MINE INSPECTOR'S REPORT, BY J. A. AMIRAULT, 1981. 6 PAGES; MINING PRODUCTION CHARTS

11E/03B 27-H-14(39)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED AND CANADA WIDEMINES LIMITED. REPORT ON RECLAMATION PROPOSALS, BY ESSO RESOURCES CANADA LIMITED, 1982. 107 PAGES; 4 MAP(S) (DRILL CORE GEOCHEMICAL; PROPERTY LOCATION; SOIL TYPE; VEGETATION SAMPLE LOCATION); CROSS-SECTIONS; PHOTOGRAPHS; ROSE DIAGRAMS

11E/03B 27-H-14(40)

LEAD, GAYS RIVER, HALIFAX COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED AND CANADA WIDEMINES LIMITED. REPORT ON RECLAMATION PROPOSALS, BY ESSO RESOURCES CANADA LIMITED, 1983. 99 PAGES; 4 MAP(S) (MINE RECLAMATION; MINE SURFACE PLANS; SOIL TYPE; STUDY AREA LOCATION; VEGETATION SAMPLE LOCATION); CROSS-SECTIONS; PHOTOGRAPHS; ROSE DIAGRAMS

11E/04A 21-I-35(04)

GOLD, RENFREW, HANTS COUNTY, NOVA SCOTIA. E. HORNE. REPORT ON DRILLING, BY A. WRIGHT, 1983. 10 PAGES; 1 MAP (DRILLHOLE LOCATION); DRILLHOLE SECTIONS

11E/04A 41-I-19(01)

SILICA, MCPHEES CORNER, HANTS COUNTY, NOVA SCOTIA. L. E. SHAW LIMITED. REPORT ON PROSPECTING AND DRILLING, BY S. SMITH, 1983. 6 PAGES; 1 MAP (DRILLHOLE LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS

11E/05A 07-I-29(04)

BASE METALS, NOEL LAKE, HANTS COUNTY, NOVA SCOTIA. EASTERN GEOPHYSICS LIMITED AND NORTHEAST EXPLORATION SERVICES LIMITED (FOR BILLITON CANADA LIMITED). REPORT ON GROUND MAGNETIC, GROUND VLF AND IP SURVEYS, BY G. MACGILLIVRAY, 1983. 19 PAGES; 6 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; MAGNETIC, GROUND; PROPERTY LOCATION; VLF, GROUND); PSEUDO SECTIONS; STRATIGRAPHIC COLUMNS

11E/05A 07-I-29(05)

BASE METALS, NOEL LAKE, HANTS COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED. REPORT ON DRILLING AND OVERBURDEN GEOCHEMISTRY, BY G. MACGILLIVRAY, 1983. 71 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL); DRILLHOLE LOGS; DRILLHOLE SECTIONS; STRATIGRAPHIC COLUMNS

11E/05D 39-D-74(01)

PETROLEUM, COBEQUID BAY AREA, COLCHESTER COUNTY, NOVA SCOTIA. G. H. AUSTIN (FOR RAM PETROLEUMS LIMITED). REPORT ON GEOLOGY AND SEISMIC INTERPRETATIONS, BY G. H. AUSTIN, 1973. 32 PAGES; 4 MAP(S) (FACIES; PALEOGEOGRAPHIC; PROPERTY LOCATION; TECTONIC); COMPOSITE SECTIONS; CROSS-SECTIONS; STRATIGRAPHIC CHARTS

11E/05D 39-D-74(02)

PETROLEUM, COBEQUID BAY AREA, COLCHESTER COUNTY, NOVA SCOTIA. MANDREL CANADA LIMITED, TELEDYNE EXPLORATION LIMITED AND JORDON, LEWIS AND JOSE GEOPHYSICAL CONSULTANTS LIMITED (FOR RAM PETROLEUMS LIMITED). REPORT ON GEOLOGY, VIBROSEIS SEIMSIC SURVEY, AIRBORNE MAGNETIC, AND GRAVITY INTERPRETATIONS AND FRACTURE ANALYSES, BY H. MCGREGOR, R. P. JORDON, J. S. FIFE, 1973. 26 PAGES; 7 MAP(S) (GEOLOGICAL; GRAVITY, AIRBORNE; MAGNETIC, AIRBORNE; PROPERTY LOCATION; SEISMIC LINES LOCATION; STRUCTURAL; SUBSURFACE TOPOGRAPHIC); CROSS-SECTIONS; MAGNETIC PROFILES

11E/05D 39-D-74(03)

PETROLEUM, COBEQUID BAY AREA, COLCHESTER COUNTY, NOVA SCOTIA. STRUCTURE TEST LIMITED (FOR RAM PETROLEUMS LIMITED). REPORT ON GEOLOGICAL SURVEY, FRACTURE ANALYSES, AND STRUCTURAL INTERPRETATIONS, BY W. B. GALLUP, 1972. 14 PAGES; 4 MAP(S) (PROPERTY LOCATION; STRUCTURAL)

11E/05D 39-D-74(04)

PETROLEUM, COBEQUID BAY AREA, COLCHESTER COUNTY, NOVA SCOTIA. SHAWNEE PETROLEUMS LIMITED. REPORT ON SEISMIC SURVEYS, BY A. TREPANIER, 1976. 8 PAGES; 4 MAP(S) (SEISMIC; SEISMIC LINES LOCATION; STRUCTURAL)

11E/06A 06-D-07(22)

BARITE, BROOKFIELD, COLCHESTER COUNTY, NOVA SCOTIA. C. O. CAMPBELL (FOR MARITIME-BARYTES LIMITED). REPORT ON ORE RESERVE ESTIMATES (SUPPLEMENT TO NSDME ASSESSMENT REPORT 11E/06A 06-D-07(07)), BY C. O. CAMPBELL, 1949. 3 PAGES

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11E/06A 06-D-07(24)

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11E/06A 06-D-07(25)

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11E/06A 06-D-41(01)

BARITE, SMITHFIELD, COLCHESTER COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES LIMITED. REPORT ON GEOLOGY AND SOIL GEOCHEMICAL SURVEY, BY P. D. MCCULLOCH, 1984. 11 PAGES; 11 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; SOIL GEOCHEMICAL)

11E/06A 07-D-41(08)

BASE METALS, SMITHFIELD, COLCHESTER COUNTY, NOVA SCOTIA. GRANGES EXPLORATION AB (FOR W. B. DUNLOP). REPORT ON DRILLING, BY G. W. ZBITNOFF, 1983. 34 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; PROPERTY LOCATION); DRILLHOLE LOGS; DRILLHOLE SECTIONS; STRATIGRAPHIC CHARTS

11E/06A 07-D-41(09)

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11E/07B 06-D-76(01)

BARITE, PEMBROKE, COLCHESTER COUNTY, NOVA SCOTIA. NORANDA EXPLORATION COMPANY LIMITED AND EASTERN GEOPHYSICS LIMITED (FOR LESTER ARCHIBALD DRILLING AND BLASTING COMPANY). REPORT ON GEOLOGY, STREAM SEDIMENT AND STREAM SEDIMENT HEAVY MINERALS GEOCHEMICAL SURVEYS, GROUND GRAVITY AND IP SURVEYS, BY R. F. DAHN, D. P. ZWICKER, 1984. 11 PAGES; 6 MAP(S) (GEOLOGICAL; HEAVY MINERALS SAMPLE LOCATION; PROPERTY LOCATION; STREAM SEDIMENT SAMPLE LOCATION; TOPOGRAPHIC); GRAVITY PROFILES; PSEUDO SECTIONS

11E/07B 07-D-18(13)

BASE METALS, EASTVILLE, COLCHESTER COUNTY, NOVA SCOTIA. SULPETRO MINERALS LIMITED. REPORT ON DRILLING, BY W. P. BINNEY, A. L. SANGSTER, 1982. 30 PAGES; 1 MAP (DRILLHOLE LOCATION; GEOLOGICAL); DRILLHOLE LOGS; DRILLHOLE SECTIONS

11E/07D 06-M-03(01)

BARITE, BRIDGEVILLE, PICTOU COUNTY, NOVA SCOTIA. W. A. MACPHERSON (FOR CLAYMORE MANAGEMENT LIMITED). COMPILATION REPORT FOR PROPOSED EXPLORATION PROGRAM, BY W. A. MACPHERSON, 1983. 12 PAGES; 6 MAP(S) (GRAVITY, GROUND; IP; PROPERTY LOCATION; SOIL GEOCHEMICAL)

11E/07D 06-M-03(02)

BARITE, BRIDGEVILLE, PICTOU COUNTY, NOVA SCOTIA. K. C. O'TOOLE (FOR CLAYMORE MANAGEMENT LIMITED). REPORT ON GEOLOGICAL SURVEY, BY K. C. O'TOOLE, 1983. 3 PAGES

11E/07D 06-M-03(03)

BARITE, BRIDGEVILLE, PICTOU COUNTY, NOVA SCOTIA. W. A. MACPHERSON (FOR CLAYMORE MANAGEMENT LIMITED). REPORT ON SOIL GEOCHEMICAL AND GROUND VLF SURVEYS, BY W. A. MACPHERSON, 1983. 11 PAGES; 3 MAP(S) (SOIL GEOCHEMICAL; VLF, GROUND)

11E/07D 06-M-41(02)

BARITE, LORNE STATION, PICTOU COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES INCORPORATED. REPORT ON GEOLOGY, SOIL AND TILL GEOCHEMICAL SURVEYS, BY P. D. MCCULLOCH, 1983. 19 PAGES; 29 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; SOIL GEOCHEMICAL)

11E/08B 39-G-02(01)

PETROLEUM, CALEDONIA, GUYSBOROUGH COUNTY, NOVA SCOTIA. NOVAR EXPLORATION LIMITED. REPORT ON GEOLOGY AND POTENTIAL SOURCE ROCKS, BY D. W. AXFORD, O. A. ERDMAN, 1982. 18 PAGES; 7 MAP(S) (ISOPACHS; NTS DIVISIONS; PROPERTY LOCATION; STRUCTURAL); PHOTOGRAPHS; STRATIGRAPHIC CHARTS

11E/08D 13-B-19(03)

COPPER, LOCHABER LAKE, ANTIGONISH COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES INCORPORATED. REPORT ON GEOLOGY, SOIL AND TILL GEOCHEMICAL SURVEYS, BY P. D. MCCULLOCH, 1983. 17 PAGES; 13 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; SOIL GEOCHEMICAL; TILL GEOCHEMICAL)

11E/09D 06-M-36(01)

BARITE, KNOYDART, PICTOU COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES INCORPORATED. REPORT ON GEOLOGY, SOIL AND TILL GEOCHEMICAL SURVEYS, BY P. D. MCCULLOCH, 1983. 16 PAGES; 15 MAP(S) (GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; METALLIC MINERAL LOCATION; PROPERTY LOCATION; SOIL GEOCHEMICAL)

11E/10A 06-M-15(03)

BARITE, MCLELLAN BROOK, PICTOU COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES INCORPORATED. REPORT ON GEOLOGY, SOIL AND TILL GEOCHEMICAL SURVEYS, BY P. D. MCCULLOCH, 1983. 14 PAGES; 17 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; SOIL GEOCHEMICAL; TILL GEOCHEMICAL)

11E/10A 06-M-15(04)

BARITE, MCLELLAN BROOK, PICTOU COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES LIMITED. REPORT ON GEOLOGICAL SURVEY, BY P. D. MCCULLOCH, 1983. 10 PAGES; 3 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION)

11E/10A 07-M-42(02)

BASE METALS, PINE TREE, PICTOU COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES LIMITED. REPORT ON SOIL GEOCHEMICAL SURVEY, BY P. D. MCCULLOCH, 1984. 11 PAGES; 6 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; SOIL GEOCHEMICAL)

11E/10A 10-M-29(02)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. SUNDERLAND, PRESTON, SIMARD AND ASSOCIATES LIMITED AND CANADIAN-BRITISH CONSULTANTS LIMITED. SUMMARY

REPORT ON COAL DUMP RECLAMATION PROJECT, BY CANADIAN-BRITISH CNSLTS L, SUNDERLAND, PRESTON, SIMARD AND AS. 10 PAGES; 2 MAP(S) (COAL DUMP RECLAMATION)

11E/10A 10-M-29(03)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. K. WARDELL AND PARTNERS (FOR NORTHERN STRIP MINING LIMITED). REPORT ON THE IDENTIFICATION AND PRELIMINARY FEASIBILITY OF POTENTIAL STRIPPING RESOURCES, BY K. WARDELL, C. WARDELL, 1976. 57 PAGES; 10 MAP(S) (COAL RESERVES; COAL SEAM LOCATION; CROSS-SECTION LOCATION; DRILLHOLE LOCATION; PIT LOCATION; TOPOGRAPHIC); CORRELATION SECTIONS; STRATIGRAPHIC COLUMNS

11E/10A 10-M-29(04)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. ALEXANDER SHAND (HOLDINGS) LIMITED. REPORT ON PROPOSAL FOR OPENCAST COAL DEVELOPMENT, BY ALEXANDER SHAND (HLDGS) L, 1976. 10 PAGES; 6 MAP(S) (COAL DUMP RECLAMATION; COAL SEAM LOCATION; DRILLHOLE LOCATION; MINE SURFACE PLANS)

11E/10A 10-M-29(05)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. FORDING COAL LIMITED. REPORT ON FEASIBILITY STUDY, BY FORDING COAL L, 1976. 18 PAGES; 3 MAP(S) (COAL RESERVES; COAL SEAM LOCATION; CROSS-SECTION LOCATION; DRILLHOLE LOCATION; GEOLOGICAL; MINE SURFACE PLANS; STRUCTURAL); CROSS-SECTIONS

11E/10A 10-M-29(06)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. NORTHERN STRIP MINING LIMITED. REPORT ON PROPOSAL FOR OPENCAST COAL DEVELOPMENT AND PRICING STRUCTURE, BY NORTHERN STRIP MNG L, 1977. 16 PAGES; 1 MAP (COAL SEAM LOCATION; CROSS-SECTION LOCATION; DRILLHOLE LOCATION; PIT LOCATION); CROSS-SECTIONS; HISTOGRAMS

11E/10A 10-M-29(07)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. GEORGE WIMPEY CANADA LIMITED. REPORT ON PROPOSAL FOR DEVELOPMENT OF OPEN PIT MINING, BY GEORGE WIMPEY CAN L, 1977. 26 PAGES; BLOCK DIAGRAMS; CROSS-SECTIONS

11E/10A 10-M-29(08)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. GEORGE WIMPEY CANADA LIMITED. REPORT ON THE ENVIRONMENTAL SURVEYS FOR THE PROPOSED OPEN PIT MINING OPERATION, BY R. D. JONES, 1977. 53 PAGES; 3 MAP(S) (AIR QUALITY SAMPLE LOCATION; DRAINAGE; PIT LOCATION; STREAM WATER SAMPLE LOCATION; STUDY AREA LOCATION); FREQUENCY DISTRIBUTION GRAPHS; PHOTOGRAPHS

11E/10A 10-M-29(09)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. GEORGE WIMPEY CANADA LIMITED. STATUS REPORT ON OPEN PIT MINING DEVELOPMENT, BY R. M. RAE, 1977. 19 PAGES; 2 MAP(S) (COAL SEAM LOCATION; DRILLHOLE LOCATION; MINE SURFACE PLANS; TRENCH LOCATION); BLOCK DIAGRAMS; CROSS-SECTIONS; DRILLHOLE SECTIONS

11E/10A 10-M-29(10)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. GEORGE WIMPEY CANADA LIMITED. REPORT ON ENVIRONMENTAL CONTROL AND MONITORING OF THE PROPOSED OPEN PIT MINING OPERATION, BY R. D. JONES, 1977. 38 PAGES; 7 MAP(S) (AIR QUALITY SAMPLE LOCATION; PIT LOCATION)

11E/10A 10-M-29(11)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. GEORGE WIMPEY CANADA LIMITED. METHOD STATEMENT REPORT FOR OPEN CAST COAL PROJECT, BY B. WARD, 1977. 279 PAGES; 7 MAP(S) (COAL SEAM LOCATION; DRILLHOLE LOCATION; MINE SURFACE PLANS; PROPERTY LOCATION); CROSS-SECTIONS; DRILLHOLE LOGS; DRILL-HOLE SECTIONS; HYDROLOGIC GRAPHS

11E/10A 10-M-29(12)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. ONTARIO RESEARCH FOUNDATION (FOR GEORGE WIMPEY CANADA LIMITED). REPORT ON WASHABILITY DATA AND PREDICTIONS FOR COAL PREPARATION FEASIBILITY STUDY, BY P. D. R. MALTBY, J. BISKUPSKI, 1978. 245 PAGES

11E/10A 10-M-29(13)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. SIMON-CARVES OF CANADA LIMITED (FOR GEORGE WIMPEY CANADA LIMITED). REPORT ON COAL PREPARATION FEASIBILITY STUDY, BY SIMON-CARVES CAN L, 1978. 71 PAGES; COAL ANALYSES GRAPHS

11E/10A 10-M-29(14)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. MONTREAL ENGINEERING COMPANY LIMITED. REPORT ON REVIEW OF COAL MINING PROPOSAL, BY MONTREAL ENGNRG C L, 1978. 56 PAGES; 1 MAP (COAL SAMPLE LOCATION; COAL SEAM LOCATION; DRILLHOLE LOCATION; ISOPACHS; OVERBURDEN THICKNESS); COAL ANALYSES GRAPHS; DRILL CORE ANALYSES GRAPHS; PRODUCTION COST GRAPHS

11E/10A 10-M-29(15)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. MARSTON AND MARSTON INCORPORATED (FOR ST. LAWRENCE CEMENT COMPANY). REPORT ON MINE DEVELOPMENT PROPOSAL, BY MARSTON AND MARSTON INC, 1980. 15 PAGES; 1 MAP (PIT LOCATION)

11E/10A 10-M-29(16)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. MARSTON AND MARSTON INCORPORATED (FOR ST. LAWRENCE CEMENT COMPANY). REPORT ON MINING FEASIBILITY STUDY, BY MARSTON AND MARSTON INC, 1980. 68 PAGES; 11 MAP(S) (COAL DUMP RECLAMATION; COAL SEAM LOCATION; DRILLHOLE LOCATION; MINE SURFACE PLANS; PIT LOCATION; PROPERTY LOCATION); CORRELATION SECTIONS; CROSS-SECTIONS; PHOTOGRAPHS

11E/10A 10-M-29(17)

COAL, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. PICTOU COUNTY DISTRICT PLANNING COMMISSION. REPORT ON UNDERMINING AND SUBSIDENCE, BY PICTOU CO DIST PLAN COMM, 1981. 72 PAGES; 23 MAP(S) (COAL SEAM LOCATION; CROSS-SECTION LOCATION; DRILLHOLE LOCATION; MINE LEVEL PLANS; PROPERTY LOCATION; STRUCTURAL); CROSS-SECTIONS; DRILLHOLE LOGS

11E/10A 10-M-35(04)

COAL, WESTVILLE, PICTOU COUNTY, NOVA SCOTIA. THORBURN MINING LIMITED. REPORT ON DUMP RECLAMATION FEASIBILITY STUDY, BY C. CARR, D. AVERY, N. DAVIDSON, L. LANDGREN, 1979. 12 PAGES; 2 MAP(S) (COAL DUMP RECLAMATION; TOPOGRAPHIC)

11E/10A 10-M-35(05)

COAL, WESTVILLE, PICTOU COUNTY, NOVA SCOTIA. N. C. DAVIDSON (FOR BRINCO LIMITED). REPORT ON MINE DEVELOPMENT FEASIBILITY STUDY, BY N. C. DAVIDSON, 1980. 29 PAGES; 6 MAP(S) (COAL RESERVES; COALFIELD LOCATION; MINE LEVEL PLANS; MINE SURFACE PLANS)

11E/10A 39-M-29(01)

PETROLEUM, STELLARTON, PICTOU COUNTY, NOVA SCOTIA. EASTCORE ANALYSES LIMITED. REPORT ON WESTWAY P-54 DRILL CORE ANALYSES, POROSITY AND PERMEABILITY, BY S. A. DARRAH, 1983. 9 PAGES

11E/10C 07-M-27(01)

BASE METALS, SCOTSBURN, PICTOU COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES LIMITED (FOR BLUESTACK RESOURCES LIMITED AND BP RESOURCES CANADA LIMITED). REPORT ON GEOLOGY, SOIL AND ROCK GEOCHEMICAL SURVEYS, BY P. D. MCCULLOCH, 1984. 29 PAGES; 37 MAP(S) (PROPERTY LOCATION; ROCK SAMPLE LOCATION; SOIL GEOCHEMICAL

11E/10C 39-M-27(02)

PETROLEUM, SCOTSBURN, PICTOU COUNTY, NOVA SCOTIA. SCHLUMBERGER OF CANADA LIMITED, GLEN LOCK OIL CONSULTANTS LIMITED AND CORE LABORATORIES OF CANADA LIMITED (FOR CHEVRON STANDARD LIMITED). SCOTSBURN NO. 2 WELL HISTORY REPORT, BY SCHLUMBERGER CAN L, GLEN LOCK OIL CNSLTS L, CORE LABORATORIES CAN L, 1981. 62 PAGES; 1 MAP (DRILL HOLE LOCATION); DENSITY LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; PETROGRAPHIC LOGS; SONIC LOGS

11E/12B 21-E-55(02)

GOLD, WILLIAMSDALE, CUMBERLAND COUNTY, NOVA SCOTIA. U.S. BORAX (FOR M. P. CULLEN). REPORT ON DRILLING, BY W. B. BURTON, 1983. 17 PAGES; 1 MAP (DRILL-HOLE LOCATION; GEOLOGICAL); DRILLHOLE LOGS

11E/12C 39-E-23(01)

PETROLEUM, OXFORD, CUMBERLAND COUNTY, NOVA SCOTIA. DRESSER OLYMPIC GEOPHYSICAL COMPANY AND GULF OIL CANADA LIMITED. REPORT ON REFLECTION SEISMIC SURVEY, BY G. W. FAWCETT, 1975. 14 PAGES; 3 MAP(S) (PROPERTY LOCATION; SEISMIC; SEISMIC LINES LOCATION; WELL HOLE LOCATION)

11E/13A 13-E-33(02)

COPPER, PUGWASH, CUMBERLAND COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED. REPORT ON DRILLING, BY J. O'SULLIVAN, 1983. 50 PAGES; 4 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; ISOPACHS; PROPERTY LOCATION; SUBSURFACE TOPOGRAPHIC); CORRELATION SECTIONS; DRILLHOLE LOGS; DRILLHOLE SECTIONS; STRATIGRAPHIC CHARTS

11F/04A 21-G-61(03)

GOLD, OFFSHORE COUNTRY HARBOUR, GUYSBOROUGH COUNTY, NOVA SCOTIA. ECOLOGICAL AND RESOURCES CONSULTANTS LIMITED (FOR SEABRIGHT RESOURCES INCORPORATED). REPORT ON OFFSHORE GOLD PLACER DEPOSITS, BY J. D. GLOVER, W. E. HALE, 1983. 33 PAGES; 1 MAP (PROPERTY LOCATION)

11F/04A 21-G-61(04)

GOLD, OFFSHORE COUNTRY HARBOUR, GUYSBOROUGH COUNTY, NOVA SCOTIA. SEABRIGHT RESOURCES INCORPORATED. REPORT ON OFFSHORE GOLD PLACER DEPOSITS, BY SEABRIGHT RES INC, 1981. 138 PAGES; 10 MAP(S) (BATHYMETRIC; MARINE SEDIMENT SAMPLE LOCATION; MARINE SEDIMENT TYPE; PROPERTY LOCATION); HISTOGRAMS; SEDIMENT PROPERTIES GRAPHS

11F/04B 21-G-53(10)

GOLD, WINE HARBOUR, GUYSBOROUGH COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON DRILLING, BY L. D. RANKIN, 1983. 23 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION; SP; VLF, GROUND); DRILLHOLE LOGS

11F/04B 21-G-66(02)

GOLD, GEGOGAN HARBOUR, GUYSBOROUGH COUNTY, NOVA SCOTIA. NORANDA EXPLORATION COMPANY LIMITED. REPORT ON GEOLOGICAL, SOIL, ROCK AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BY D. MACINNIS, 1984. 6 PAGES; 2 MAP(S) (GEOLOGICAL; ROCK GEOCHEMICAL; SOIL GEOCHEMICAL; STREAM SEDIMENT GEOCHEMICAL)

11F/04C 21-G-07(01)

GOLD, COUNTRY HARBOUR, GUYSBOROUGH COUNTY, NOVA SCOTIA. OUTLAND RESOURCES CORPORATION. REPORT ON GEOLOGY, SOIL AND BASAL TILL GEOCHEMICAL SURVEYS, AND GROUND MAGNETIC AND GROUND VLF SURVEYS, BY D. FORGERON, 1983. 20 PAGES; 8 MAP(S) (GEOLOGICAL; MAGNETIC, GROUND; PROPERTY LOCATION; SOIL GEOCHEMICAL; TILL GEOCHEMICAL); DRILLHOLE LOGS

11F/04C 21-G-07(02)

GOLD, COUNTRY HARBOUR, GUYSBOROUGH COUNTY, NOVA SCOTIA. OUTLAND RESOURCES CORPORATION. REPORT ON GEOLOGICAL, SOIL AND ROCK GEOCHEMICAL SURVEYS AND GROUND MAGNETIC AND GROUND VLF SURVEYS, BY D. FORGERON, 1983. 30 PAGES; 7 MAP(S) (EM, GROUND; MAGNETIC, GROUND; PROPERTY LOCATION; SOIL GEOCHEMICAL)

11F/04D 21-G-69(01)

GOLD, MOUNT MISERY, GUYSBOROUGH COUNTY, NOVA SCOTIA. M. BAKER. PROSPECTOR'S NOTES, BY M. BAKER, 1984. 1 PAGE; 1 MAP (PROPERTY LOCATION)

11F/05B 21-G-13(20)

GOLD, FOREST HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. ECOLOGICAL AND RESOURCES CONSULTANTS LIMITED (FOR SEABRIGHT RESOURCES INCORPORATED). SUMMARY REPORTS ON TAILING SAMPLING, FOREST HILL GOLD DISTRICT, REGIONAL EXPLORATION AND OFFSHORE PLACER INVESTIGATION, BY W. E. HALE, J. D. GLOVER, 1983. 11 PAGES

11F/05B 21-G-13(21)

GOLD, FOREST HILL (AND 23 OTHER SITES), GUYSBOROUGH COUNTY, NOVA SCOTIA. ECOLOGICAL AND RESOURCES CONSULTANTS LIMITED, J. E. DAWE, WRIGHT-CURTIS ENGINEERS AND WITTECK DEVELOPMENT INCORPORATED (FOR SEABRIGHT RESOURCES INCORPORATED). REPORT ON BULK SAMPLING, ASSAYING AND METALLURGICAL TESTING OF TAILINGS, BY J. D. GLOVER, W. E. HALE, D. NEWMAN, M. K. WITTE, 1983. 429 PAGES; 210 MAP(S) (MINE TAILINGS; PROPERTY LOCATION; TAILINGS GEOCHEMICAL)

11F/05B 21-G-13(22)

GOLD, FOREST HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. ECOLOGICAL AND RESOURCES CONSULTANTS LIMITED, K. TEASDALE AND PHOENIX GEOPHYSICS LIMITED (FOR SEABRIGHT RESOURCES INCORPORATED). REPORT ON GEOLOGICAL, ROCK GEOCHEMICAL, GROUND VLF AND GROUND MAGNETIC SURVEYS, DRILLING AND TRENCHING, BY J. D. GLOVER, W. E. HALE, 1983. 201 PAGES; 10 MAP(S) (DRILL-HOLE LOCATION; GEOLOGICAL; IP; MINE SURFACE PLANS; PROPERTY LOCATION; ROCK GEOCHEMICAL; STRUCTURAL; VLF, GROUND); DRILLHOLE SECTIONS; MINE CROSS-SECTIONS

11F/05B 21-G-13(23)

GOLD, FOREST HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. ECOLOGICAL AND RESOURCES CONSULTANTS LIMITED (FOR SEABRIGHT RESOURCES INCORPORATED). REPORT ON GEOLOGY AND GOLD DEPOSITS OF NOVA SCOTIA, BY J. D. GLOVER, W. E. HALE, 1983. 28 PAGES; 2 MAP(S) (GEOLOGICAL; PROPERTY LOCATION); STRATIGRAPHIC CHARTS

11F/05B 21-G-13(24)

GOLD, FOREST HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. REPORT ON GEOLOGY AND MINING HISTORY, BY E. R. FARIBAULT, 1929. 7 PAGES

11F/05B 21-G-13(25)

GOLD, FOREST HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. CANSO MINING CORPORATION. REPORT ON RESERVES, BULK SAMPLING AND PROPOSED DEVELOPMENT PROGRAM, BY A. J. MASON, 1956. 13 PAGES

11F/05B 21-G-13(26)

GOLD, FOREST HILL, GUYSBOROUGH COUNTY, NOVA SCOTIA. CANSO MINING CORPORATION. REPORT ON PRODUCTION AND SALE OF CONCENTRATE, BY J. DAWE, 1956. 3 PAGES

11F/05B 21-G-13(27)

GOLD, FOREST HILL (MILE LAKE), GUYSBOROUGH COUNTY, NOVA SCOTIA. MILE LAKEMNG LTD (FOR INTERNAT GEOCHEM ASSOCS LTD, M. J. RIDDELL, ENTREPRENURIAL MGMT LTD, BARTECH INC, LOUISBOURG PROP HLDGS LTD AND WHITEBURN PRECIOUS METALS LTD). REPORT ON GEOLOGICAL, ROCK AND TILL GEOCHEMICAL SURVEYS, DRILL CORE GEOCHEMISTRY, MILL TESTING AND DRILLING, BY J. E. RIDDELL, 1983. 107 PAGES; 11 MAP(S) (DRILL CORE GEOCHEMICAL; DRILLHOLE LOCATION; GEOLOGICAL; MINE SURFACE PLANS; PROPERTY LOCATION; ROCK GEOCHEMICAL; TILL GEOCHEMICAL); DRILLHOLE LOGS; DRILLHOLE SECTIONS

11F/06C 39-G-67(01)

PETROLEUM, CHEDABUCTO BAY AREA, GUYSBOROUGH COUNTY, NOVA SCOTIA. LUNDBERG SEISMIC CONSULTANTS LIMITED (FOR CAVALIER ENERGY INCORPORATED). REPORT ON SEISMIC SURVEYS, BY R. M. LUNDBERG, 1975. 11 PAGES; 3 MAP(S) (PROPERTY LOCATION; STRUCTURAL); SEISMIC PROFILES

11F/09C 07-O-75(01)

BASE METALS, MACKILLOPS POND, RICHMOND COUNTY, NOVA SCOTIA. PROSPEX INCORPORATED. REPORT ON GEOLOGY, AND STREAM SEDIMENT AND ROCK GEOCHEMICAL SURVEYS, BY C. MILLER, 1984. 12 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT SAMPLE LOCATION)

11F/10D 21-O-72(01)

GOLD, TAYLOR BROOK, RICHMOND COUNTY, NOVA SCOTIA. PROSPEX INCORPORATED. REPORT ON GEOLOGICAL AND ROCK, STREAM SEDIMENT AND STREAM SEDIMENT HEAVY MINERALS GEOCHEMICAL SURVEYS, BY C. MILLER, 1984. 18 PAGES; 3 MAP(S) (PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT SAMPLE LOCATION)

11F/12C 39-B-04(01)

PETROLEUM, ANTIGONISH AREA, ANTIGONISH COUNTY, NOVA SCOTIA. DUNDEE-PALLISER RESOURCES INCORPORATED AND SHAWNEE PETROLEUMS LIMITED. REPORT ON GEOLOGY AND HYDROCARBON POTENTIAL, BY C. G. BERRY, W. C. DONALD, 1973. 12 PAGES; 6 MAP(S) (GEOLOGICAL; ISOPACHS; PALEOGEOGRAPHIC; PROPERTY LOCATION; TECTONIC); CROSS-SECTIONS

11F/12C 39-B-25(01)

PETROLEUM, SOUTH SIDE HARBOUR, ANTIGONISH COUNTY, NOVA SCOTIA. FARRIES ENGINEERING LIMITED (FOR BRAS D'OR OIL COMPANY LIMITED). BRAS D'OR ANSCHUTZ NO. 1 WELL HISTORY REPORT, BY FARRIES ENGRNG L, 1976. 74 PAGES; 2 MAP(S) (DRILLHOLE LOCATION); DENSITY LOGS; GAMMA RAY LOGS; PETROGRAPHIC LOGS

11F/12D 07-B-31(01)

BASE METALS, HAVRE BOUCHER, ANTIGONISH COUNTY, NOVA SCOTIA. BLUESTACK RESOURCES LIMITED (FOR BP RESOURCES CANADA LIMITED AND BLUESTACK RESOURCES LIMITED). REPORT ON GEOLOGY AND SOIL GEOCHEMICAL SURVEY, BY P. D. MCCULLOCH, 1984. 12 PAGES; 6 MAP(S) (PROPERTY LOCATION; SOIL GEOCHEMICAL)

11F/12D 07-B-31(02)

BASE METALS, HAVRE BOUCHER, ANTIGONISH COUNTY, NOVA SCOTIA. BP RESOURCES CANADA LIMITED. REPORT ON GEOLOGY, AND SOIL AND ROCK GEOCHEMICAL SURVEYS, BY C. B. MCKENZIE, C. RAVENHURST, 1985. 28 PAGES; 12 MAP(S) (GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; SOIL GEOCHEMICAL); CHEMICAL ANALYSES GRAPHS

11F/13A 39-B-40(01)

PETROLEUM, ST. GEORGES BAY, ANTIGONISH COUNTY, NOVA SCOTIA. SOCIETE QUEBECOISE D'INITIATIVES PETROLIERES. REPORT ON MARINE GRAVITY, MARINE MAGNETIC AND MARINE SEISMIC SURVEYS, BY C. ANGER, 1976. 17 PAGES; 5 MAP(S) (DRILLHOLE LOCATION; GEOPHYSICAL SURVEYS INDEX; SEISMIC); SEISMIC PROFILES

11F/13B 39-B-10(01)

PETROLEUM, CAPE GEORGE, ANTIGONISH COUNTY, NOVA SCOTIA. RPI RESEARCH CANADA LIMITED (FOR GOLD LAKE OIL COMPANY INCORPORATED). REPORT ON GEOLOGY AND HYDROCARBON POTENTIAL, BY H. D. MUNROE, C. V. CAMPBELL, J. C. HORNE, 1982. 12 PAGES; 3 MAP(S) (GEOLOGICAL; PROPERTY LOCATION)

11F/14B 28-J-23(05)

LIMESTONE, GLENDALE, INVERNESS COUNTY, NOVA SCOTIA. JACQUES, WHITFORD AND ASSOCIATES LIMITED (FOR KELROCK LIMITED, CREIGNISH MINERALS LIMITED AND W. S. SHAW). REPORT ON ROCK GEOCHEMISTRY AND ECONOMIC EVALUATION OF THE KELLY COVE DOLOMITE AND GLENDALE LIMESTONE DEPOSIT, BY J. A. AMIRAULT, 1983. 55 PAGES

11F/14C 06-J-29(02)

BARITE, JUDIQUE, INVERNESS COUNTY, NOVA SCOTIA. L. HART. PROSPECTOR'S REPORT ON DIGGING AND TRENCHING, BY L. HART, 1983. 1 PAGE ; 2 MAP(S) (PIT LOCATION; PROPERTY LOCATION)

11F/14C 06-J-29(03)

BARITE, JUDIQUE, INVERNESS COUNTY, NOVA SCOTIA. L. HART. PROSPECTOR'S MAP, BY L. HART, 1984. 1 MAP (DRILLHOLE LOCATION; PIT LOCATION; TRENCH LOCATION)

11F/14D 16-J-14(04)

DOLOMITE, CHURCHVIEW, INVERNESS COUNTY, NOVA SCOTIA. W. S. SHAW AND B. MURPHY (FOR KELROCK LIMITED). REPORT ON ROCK AND DRILL CORE GEOCHEMISTRY AND ORE RESERVE CALCULATIONS, BY W. S. SHAW, 1982. 12 PAGES; 1 MAP (DRILLHOLE LOCATION; GEOLOGICAL; ROCK SAMPLE LOCATION; TOPOGRAPHIC)

11F/15A 06-O-65(02)

BARITE, PINE BROOK, RICHMOND COUNTY, NOVA SCOTIA. CUVIER MINES INCORPORATED. REPORT ON GEOLOGICAL AND GROUND MAGNETIC SURVEYS AND DRILLING, BY D. L. BLACK, L. D. RANKIN, 1983. 27 PAGES; 4 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; MAGNETIC, GROUND; PROPERTY LOCATION); DRILLHOLE LOGS; DRILLHOLE SECTIONS

11F/15A 06-O-65(03)

BARITE, PINE BROOK, RICHMOND COUNTY, NOVA SCOTIA. NOVEX MINING AND EXPLORATION COMPANY LIMITED. SUMMARY REPORT OF APPLICATION FOR MINE/MILL LICENSE, BY A. M. BARRETT, NO DATE. 11 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; MINE SURFACE PLANS; ORE RESERVES; PIT LOCATION; STUDY AREA LOCATION); CROSS-SECTIONS

11F/15A 06-O-65(04)

BARITE, PINE BROOK, RICHMOND COUNTY, NOVA SCOTIA. A. M. BARRETT AND ASSOCIATES LIMITED. REPORT ON FEASIBILITY STUDY, BY A. M. BARRETT, 1981. 65 PAGES; 8 MAP(S) (CROSS-SECTION LOCATION; DRILLHOLE LOCATION; GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; MINE SURFACE PLANS; ORE RESERVES; OVERBURDEN THICKNESS; PIT LOCATION; TOPOGRAPHIC); CROSS-SECTIONS; DRILLHOLE SECTIONS

11F/15A 06-O-65(05)

BARITE, PINE BROOK, RICHMOND COUNTY, NOVA SCOTIA. NOVEX MINING AND EXPLORATION COMPANY LIMITED. REPORT ON FEASIBILITY ANALYSES, BY A. M. BARRETT, 1982. 92 PAGES; 14 MAP(S) (CROSS-SECTION LOCATION; DRILLHOLE LOCATION; GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; MINE SURFACE PLANS; ORE RESERVES; OVERBURDEN THICKNESS; PIT LOCATION; PROPERTY LOCATION; TOPOGRAPHIC); CROSS-SECTIONS; DRILLHOLE LOGS; DRILLHOLE SECTIONS; PHOTOGRAPHS

11F/15A 06-O-65(06)

BARITE, PINE BROOK, RICHMOND COUNTY, NOVA SCOTIA. N. C. DAVIDSON (FOR NOVEX MINING AND EXPLORATION COMPANY LIMITED). REPORT ON EXPLORATION HISTORY, PROPOSED DEVELOPMENT, AND ECONOMIC EVALUATION, BY N. C. DAVIDSON, 1982. 90 PAGES; 7 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; ORE RESERVES; PROPERTY LOCATION); CROSS-SECTIONS; DRILLHOLE LOGS

11F/15B 39-J-36(01)

PETROLEUM, MALAGAWATCH, INVERNESS COUNTY, NOVA SCOTIA. CHEVRON STANDARD LIMITED. MALAGAWATCH NO. 1 WELL HISTORY REPORT, BY W. MUDIE, A. BERTI, 1979. 17 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; SONIC LOGS

11F/15B 39-J-36(02)

PETROLEUM, MALAGAWATCH, INVERNESS COUNTY, NOVA SCOTIA. CHEVRON STANDARD LIMITED. MALAGAWATCH NO. 2 WELL HISTORY REPORT, BY W. MUDIE, L. DEKKER, 1979. 31 PAGES; DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; GAMMA RAY LOGS; SONIC LOGS

11F/15B 39-J-71(01)

PETROLEUM, BRAS D'OR, INVERNESS COUNTY, NOVA SCOTIA. CHEVRON STANDARD LIMITED. BRAS D'OR NO. 1 WELL HISTORY REPORT, BY W. MUDIE, A. BERTI, 1979. 14 PAGES; DENSITY LOGS; DRILLHOLE LOGS; SONIC LOGS

11F/15B 39-J-71(02)

PETROLEUM, BRAS D'OR, INVERNESS COUNTY, NOVA SCOTIA. CHEVRON STANDARD LIMITED. BRAS D'OR NO. 2 WELL HISTORY REPORT, BY W. MUDIE, A. BERTI, 1979. 27 PAGES; DENSITY LOGS; DRILLHOLE LOGS; SONIC LOGS

11F/15B 39-O-66(01)

PETROLEUM, BRAS D'OR LAKE AREA, RICHMOND COUNTY, NOVA SCOTIA. V. ZAY SMITH ASSOCIATED LIMITED AND VEEZAY GEODATA LIMITED (FOR SULTON EXPLORATION LIMITED). REPORT ON GEOLOGY AND HYDROCARBON POTENTIAL, BY G. M. COLINS, F. K. WALLACE, 1972. 55 PAGES; 8 MAP(S) (GEOLOGICAL; ISOPACHS; MARINE PHYSIOGRAPHIC REGIONS; PROPERTY LOCATION; TECTONIC); CROSS-SECTIONS; STRATIGRAPHIC CHARTS

11F/16B 07-C-110(01)

BASE METALS, NORTHEAST FRAMBOISE RIVER, CAPE BRETON COUNTY, NOVA SCOTIA. PROSPEX INCORPORATED. REPORT ON GEOLOGY AND ROCK, STREAM SEDIMENT AND STREAM SEDIMENT HEAVY MINERALS GEOCHEMICAL SURVEYS, BY C. MILLER, 1984. 13 PAGES; 3 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION)

11F/16B 27-C-83(19)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. W. A. HUTCHISON (FOR YAVA MINES LIMITED). REPORT ON MINE SITE DEVELOPMENT PROPOSALS, BY W. A. HUTCHISON, 1972. 99 PAGES

11F/16B 27-C-83(20)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. YAVA MINES LIMITED. REPORT ON PRELIMINARY FEASIBILITY STUDY, BY M. F. NICHOLSON, J. N. BOTSFORD, 1977. 54 PAGES

11F/16B 27-C-83(21)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. YAVA MINES LIMITED. REPORT ON SUBMISSION OF MINE-MILL PROPOSAL, BY YAVA MS L, 1977. 239 PAGES; 11 MAP(S) (DRILLHOLE LOCATION; ORE RESERVES; PROPERTY LOCATION); HISTOGRAMS; ORE TESTING GRAPHS; ROSE DIAGRAMS

11F/16B 27-C-83(22)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. METALLGESELLSCHAFT (FOR YAVA MINES LIMITED). FEASIBILITY REPORT ON MILL RELOCATION AND MINE AND MILL EXPANSION, BY METALLGESELLSCHAFT, 1981. 129 PAGES; 4 MAP(S) (DRILLHOLE LOCATION; METALLIC MINERAL LOCATION; MINE LEVEL PLANS; MINE TAILINGS; STUDY AREA LOCATION)

11F/16B 27-C-83(23)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. ENVIRONMENT CANADA. REPORT ON HEAVY METAL CONTAMINATION, BY G. F. WESTLAKE, D. SMITH, 1981. 33 PAGES; 8 MAP(S) (FAUNA SAMPLE LOCATION; MINE SURFACE PLANS; STREAM SEDIMENT GEOCHEMICAL; STREAM WATER SAMPLE LOCATION); CHEMICAL ANALYSES GRAPHS; CURRENT GRAPHS

11F/16B 27-C-83(24)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. YAVA MINES LIMITED. REPORT ON CONCENTRATOR OPERATION AND REHABILITATION OF THE CONCENTRATOR PLANT, BY N. DOUCET, BY YAVA MS L, 1981. 6 PAGES

11F/16B 27-C-83(25)

LEAD, SILVER MINE, CAPE BRETON COUNTY, NOVA SCOTIA. CHASE ECONOMETRICS. REPORT ON THE OUTLOOK FOR LEAD PRICES AND CONCENTRATE TREATMENT TERMS WITH REFERENCE TO CASH FLOW, BY CHASE ECONOMETRICS, 1981. 92 PAGES; HISTOGRAMS

11F/16C 07-C-96(01)

BASE METALS, MINERAL ROCK, CAPE BRETON COUNTY, NOVA SCOTIA. MINERAL TECH. REPORT ON GEOLOGICAL, SOIL AND STREAM SEDIMENT GEOCHEMICAL SURVEYS AND GROUND VLF AND GROUND MAGNETIC SURVEYS, BY H. R. OLDALE, 1982. 6 PAGES; 7 MAP(S) (GEOLOGICAL; MAGNETIC, GROUND; PROPERTY LOCATION; SOIL GEOCHEMICAL; STREAM SEDIMENT GEOCHEMICAL; VLF, GROUND)

11F/16D 07-C-40(12)

BASE METALS, FRENCH ROAD, CAPE BRETON COUNTY, NOVA SCOTIA. MINERAL TECH (FOR J. E. RIDDELL). REPORT ON GEOLOGICAL, STREAM SEDIMENT GEOCHEMICAL, GROUND EM AND GROUND MAGNETIC SURVEYS AND DRILL CORE GEOCHEMISTRY, BY D. FORGERON, 1983. 13 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; EM, GROUND; GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; STREAM SEDIMENT GEOCHEMICAL)

11K/01A 39-C-95(01)

PETROLEUM, SYDNEY, CAPE BRETON COUNTY, NOVA SCOTIA. BEAVER GEOPHYSICAL SERVICES (FOR MURPHY OIL COMPANY LIMITED). REPORT ON SEISMIC INTERPRETATIONS, BY L. RODAK, 1980. 1 PAGE; 1 MAP (SEISMIC LINES LOCATION); SEISMIC PROFILES

11K/01C 07-C-109(01)

BASE METALS, SCOTCH LAKE, CAPE BRETON COUNTY, NOVA SCOTIA. A. A. MACDONALD. PROSPECTOR'S MAP WITH ASSAYS, BY A. A. MACDONALD, 1983. 2 PAGES; 1 MAP (GEOLOGICAL; ROCK SAMPLE LOCATION)

11K/03C 39-J-27(01)

PETROLEUM, INVERNESS, INVERNESS COUNTY, NOVA SCOTIA. REPORT ON ROCK GEOCHEMISTRY, GEOLOGY, MINERALOGY, AND HYDROCARBON POTENTIAL, BY B. TILLEMENT, W. W. TAYLOR, 1973. 21 PAGES; 1 MAP (STUDY AREA LOCATION); CROSS-SECTIONS; GAS CHROMATOGRAPH CHARTS

11K/03C 39-J-27(02)

PETROLEUM, INVERNESS, INVERNESS COUNTY, NOVA SCOTIA. AQUITAINE COMPANY OF CANADA LIMITED (FOR SHAWNEE PETROLEUMS LIMITED). REPORT ON ROCK GEOCHEMISTRY, SOURCE ROCKS, GEOLOGY, AND HYDROCARBON POTENTIAL, BY B. TILLEMENT, 1973. 16 PAGES; 3 MAP(S) (ROCK SAMPLE LOCATION); CORRELATION CHARTS; CROSS-SECTIONS; STRATIGRAPHIC COLUMNS

11K/03C 39-J-27(03)

PETROLEUM, INVERNESS, INVERNESS COUNTY, NOVA SCOTIA. CORE LABORATORIES CANADA LIMITED (FOR AQUITAINE COMPANY OF CANADA LIMITED). REPORT ON ROCK ANALYSES, POROSITY, AND PERMEABILITY, BY CORE LABORATORIES CAN L, 1973. 3 PAGES

11K/03D 06-J-31(01)

BARITE, LAKE AINSLIE, INVERNESS COUNTY, NOVA SCOTIA. CCH MINERALS LIMITED (FOR R. PATTERSON). REPORT ON GEOLOGICAL, SOIL GEOCHEMICAL AND GROUND VLF SURVEYS, TRENCHING AND DRILLING, BY P. POTAPOFF, 1982. 87 PAGES; 15 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; PROPERTY LOCATION; SOIL GEOCHEMICAL; VLF, GROUND); DRILLHOLE LOGS; DRILLHOLE SECTIONS; STRATIGRAPHIC CHARTS

11K/03D 06-J-90(02)

BARITE, MOUNT PLEASANT, INVERNESS COUNTY, NOVA SCOTIA. SCOTSVILLE MINERAL RESOURCES LIMITED. REPORT ON SOIL GEOCHEMICAL SURVEY, BY R. H. MACDONALD, 1985. 2 PAGES; 4 MAP(S) (PROPERTY LOCATION; SOIL GEOCHEMICAL)

11K/03D 51-J-90(01)

TIN, MOUNT PLEASANT, INVERNESS COUNTY, NOVA SCOTIA. KIDD CREEK MINES LIMITED. REPORT ON GEOLOGICAL, ROCK AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BY R. M. GRAVES, 1983. 29 PAGES; 5 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; RADIOMETRIC, AIRBORNE; STREAM SEDIMENT GEOCHEMICAL); TERNARY DIAGRAMS; VARIATION DIAGRAMS

11K/07A 21-Q-15(02)

GOLD, ST. ANNS MOUNTAIN, VICTORIA COUNTY, NOVA SCOTIA. U.S. BORAX EXPLORATION (FOR BILLITON CANADA LIMITED). REPORT ON GEOLOGICAL AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BY W. B. BURTON, 1984. 12 PAGES; 3 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; STREAM SEDIMENT GEOCHEMICAL)

11K/07A 21-Q-15(03)

GOLD, ST. ANNS, MOUNTAIN, VICTORIA COUNTY, NOVA SCOTIA. PACIFIC COAST MINES INCORPORATED. REPORT ON A STREAM SEDIMENT GEOCHEMICAL SURVEY, BY W. B. BURTON, 1984. 5 PAGES; 1 MAP (STREAM SEDIMENT GEOCHEMICAL)

11K/07A 53-Q-50(01)

TUNGSTEN, MACDONALD BROOK, VICTORIA COUNTY, NOVA SCOTIA. SELCO INCORPORATED. REPORT ON GEOLOGICAL, ROCK, STREAM SEDIMENT AND HEAVY MINERALS GEOCHEMICAL SURVEYS, BY C. REIMANN, 1983. 11 PAGES; 6 MAP(S) (GEOLOGICAL; HEAVY MINERALS GEOCHEMICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT GEOCHEMICAL)

11K/07B 53-J-91(01)

TUNGSTEN, LAKE O'LAW, INVERNESS COUNTY, NOVA SCOTIA. SELCO INCORPORATED. REPORT ON GEOLOGICAL, SOIL, ROCK, STREAM SEDIMENT AND HEAVY MINERALS GEOCHEMICAL SURVEYS, BY C. REIMANN, 1983. 15 PAGES; 10 MAP(S) (GEOLOGICAL; HEAVY MINERALS GEOCHEMICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; SOIL GEOCHEMICAL; STREAM SEDIMENT GEOCHEMICAL)

11K/08B 10-C-113(01)

COAL, ALDER POINT, CAPE BRETON COUNTY, NOVA SCOTIA. CAPE BRETON DEVELOPMENT CORPORATION AND NOVA SCOTIA DEPARTMENT OF AGRICULTURE. REPORT ON MINE LAND RECLAMATION PROJECT, BY G. T. BOUTILIER, R. S. MORTON, 1978. 11 PAGES; PHOTOGRAPHS

11K/08B 10-C-79(02)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. MONTREAL ENGINEERING COMPANY LIMITED. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR-SURFACE COALS, BY MONTREAL ENGINEERING CO LTD, 1974. 50 PAGES

11K/08B 10-C-79(03)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. DAMES AND MOORE. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR-SURFACE COALS, BY W. D. BULLOCK, 1978. 16 PAGES

11K/08B 10-C-79(04)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. ACRES CONSULTING SERVICES LIMITED. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR-SURFACE COALS, BY ACRES CONSULTING SERVS L, 1978. 28 PAGES

11K/08B 10-C-79(05)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. THE SNC GROUP. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR-SURFACE COALS, BY THE SNC GROUP, 1978. 13 PAGES

11K/08B 10-C-79(06)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. THE LUMMUS COMPANY CANADA LIMITED. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR SURFACE COALS, BY THE LUMMUS C CAN L, 1978. 19 PAGES

11K/08B 10-C-79(07)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. TECHMAN LIMITED. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR SURFACE COALS, BY TECHMAN L, 1978. 11 PAGES

11K/08B 10-C-79(08)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. WHITMAN, BENN AND ASSOCIATES LIMITED. REPORT ON A DEVELOPMENT PROPOSAL FOR NEAR-SURFACE COALS, BY WHITMAN, BENN AND ASSOCS L, 1978. 28 PAGES

11K/08B 10-C-79(09)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. WHITMAN, BENN AND ASSOCIATES LIMITED AND INTERMIN CONSULTANTS LIMITED. REPORT ON THE PRELIMINARY COAL EVALUATION PROPOSAL, BY WHITMAN, BENN AND ASSOCS L, 1978. 18 PAGES; 1 MAP (COAL SEAM LOCATION)

11K/08B 10-C-79(10)

COAL, POINT ACONI, CAPE BRETON COUNTY, NOVA SCOTIA. MONTREAL ENGINEERING COMPANY LIMITED. REPORT ON COAL EVALUATION PROPOSAL, BY MONTREAL ENGRNG C L, 1979. 17 PAGES; 1 MAP (DRAINAGE; DRILLHOLE LOCATION; MINE SURFACE PLANS; TOPOGRAPHIC)

11K/10B 07-J-69(05)

BASE METALS, FISSET BROOK, INVERNESS COUNTY, NOVA SCOTIA. RIOCANEX AND C. G. JOHNSON (FOR GOLD BROOK DEVELOPMENTS LIMITED). REPORT ON SOIL AND STREAM SEDIMENT GEOCHEMICAL SURVEYS AND GROUND EM SURVEY, BY C. G. JOHNSON, 1983. 9 PAGES; 3 MAP(S) (EM, GROUND; PROPERTY LOCATION; SOIL SAMPLE LOCATION; STREAM SEDIMENT GEOCHEMICAL)

11K/10B 07-J-69(06)

BASE METALS, FISSET BROOK, INVERNESS COUNTY, NOVA SCOTIA. J. S. VINCENT (FOR J. SKOTYNSKY). REPORT ON COMPILATION OF PREVIOUS WORK, GEOLOGY AND TRENCHING, BY J. S. VINCENT, 1983. 15 PAGES; 4 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION; STREAM SEDIMENT SAMPLE LOCATION; TRENCH LOCATION)

11K/10B 07-J-69(07)

BASE METALS, FISSET BROOK, INVERNESS COUNTY, NOVA SCOTIA. J. S. VINCENT (FOR J. SKOTYNSKY). REPORT ON GEOLOGICAL AND STREAM SEDIMENT GEOCHEMICAL SURVEYS AND TRENCHING, BY J. S. VINCENT, 1983. 18 PAGES; 8 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION; STREAM SEDIMENT GEOCHEMICAL; TRENCH GEOLOGY)

11K/10B 07-J-87(03)

BASE METALS, TURNER BROOK, INVERNESS COUNTY, NOVA SCOTIA. BP RESOURCES CANADA LIMITED. REPORT ON GEOLOGICAL, SOIL AND ROCK GEOCHEMICAL SURVEYS AND TRENCHING, BY D. GOWER, 1984. 49 PAGES; 17 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; SOIL GEOCHEMICAL; TRENCH LOCATION)

11K/10B 53-J-92(01)

TUNGSTEN, ALDER BROOK, INVERNESS COUNTY, NOVA SCOTIA. SELCO INCORPORATED. REPORT ON GEOLOGICAL, ROCK, STREAM SEDIMENT AND HEAVY MINERALS GEOCHEMCIAL SURVEYS, BY C. REIMANN, 1983. 11 PAGES; 6 MAP(S) (GEOLOGICAL; HEAVY MINERALS GEOCHEMICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT GEOCHEMICAL)

11K/15D 07-J-93(01)

BASE METALS, SAILOR BROOK, INVERNESS COUNTY, NOVA SCOTIA. SELCO INCORPORATED. REPORT ON STREAM SEDIMENT HEAVY MINERALS AND ROCK GEOCHEMICAL SURVEYS, BY C. REIMANN, 1984. 9 PAGES; 10 MAP(S) (HEAVY MINERALS GEOCHEMICAL; PROPERTY LOCATION; STREAM SEDIMENT SAMPLE LOCATION)

11K/16C 07-Q-49(01)

BASE METALS, CAPE NORTH, VICTORIA COUNTY, NOVA SCOTIA. SELCO INCORPORATED. REPORT ON GEOLOGY AND ROCK, STREAM SEDIMENT AND HEAVY MINERALS GEOCHEMICAL SURVEYS, BY C. REIMANN, 1983. 12 PAGES; 6 MAP(S) (HEAVY MINERALS GEOCHEMICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT GEOCHEMICAL)

20O/16D 21-R-08(01)

GOLD, LAKE GEORGE, YARMOUTH COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON GEOLOGICAL, LAKE SEDIMENT AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BY L. D. RANKIN, 1984. 19 PAGES; 7 MAP(S) (GEOLOGICAL; LAKE SEDIMENT SAMPLE LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT SAMPLE LOCATION)

20P/12C 21-R-26(01)

GOLD, PUBNICO, YARMOUTH COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON GEOLOGICAL, ROCK AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BY L. D. RANKIN, 1984. 23 PAGES; 5 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT SAMPLE LOCATION)

20P/13C 51-R-10(03)

TIN, TUSKET, YARMOUTH COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED (FOR ESSO RESOURCES CANADA LIMITED, KERR ADDISON MINES LIMITED AND DOME EXPLORATION CANADA LIMITED). REPORT ON GEOLOGICAL, ROCK AND TILL GEOCHEMICAL SURVEYS, DRILLING AND TRENCHING, BY J. L. MACLEOD, 1983. 109 PAGES; 8 MAP(S) (ALTERATION; DRILLHOLE LOCATION; GEOLOGICAL; GLACIAL FEATURES; HEAVY MINERALS GEOCHEMICAL; METALLIC MINERAL LOCATION; PIT LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; TILL GEOCHEMICAL; TILL TYPE); DRILLHOLE LOGS; DRILLHOLE SECTIONS; ROSE DIAGRAMS

20P/13D 51-R-39(01)

TIN, JEROMES LAKE, YARMOUTH COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED. REPORT ON GEOLOGICAL, ROCK GEOCHEMICAL, TILL GEOCHEMICAL AND TILL HEAVY MINERALS GEOCHEMICAL SURVEYS, AND AUGER DRILLING, BY G. B. DICKIE, R. L. KOHLSMITH, 1984. 176 PAGES; 14 MAP(S) (BOULDER COUNT; DRILL CORE GEOCHEMICAL; DRILLHOLE LOCATION; GEOLOGICAL; PEBBLE COUNT; PROPERTY LOCATION; ROCK SAMPLE LOCATION; TILL GEOCHEMICAL); HISTOGRAMS

20P/14C 51-P-11(02)

TIN, UPPER OHIO, SHELBURNE COUNTY, NOVA SCOTIA. NORTHEAST EXPLORATION SERVICES LIMITED AND ESSO RESOURCES CANADA LIMITED (FOR ESSO RESOURCES CANADA LIMITED, KERR ADDISON MINES LIMITED AND DOME EXPLORATION CANADA LIMITED). REPORT ON TILL GEOCHEMICAL SURVEY, BY J. L. MACLEOD, 1983. 13 PAGES; 2 MAP(S) (PROPERTY LOCATION; TILL GEOCHEMICAL)

21A/01C 21-L-57(01)

GOLD, GREEN BAY, LUNENBURG COUNTY, NOVA SCOTIA. W. A. MACPHERSON AND ASSOCIATES (FOR OCEAN WAYS MINERALS DEVELOPMENT CORPORATION). REPORT ON GEOLOGICAL EVALUATION AND BEACH SAND MINERALOGICAL AND HEAVY MINERALS GEOCHEMICAL SURVEYS, BY W. A. MACPHERSON, 1984. 16 PAGES; 5 MAP(S) (BATHYMETRIC; BEACH SEDIMENT SAMPLE LOCATION; GEOLOGICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION)

21A/02D 21-N-09(10)

GOLD, MILL VILLAGE, QUEENS COUNTY, NOVA SCOTIA. NOVEX RESOURCE MANAGEMENT. REPORT ON SOIL GEOCHEMICAL SURVEY, BY R. BAKER, 1984. 5 PAGES; 2 MAP(S) (PROPERTY LOCATION; SOIL SAMPLE LOCATION)

21A/02D 21-N-09(11)

GOLD, MILL VILLAGE, QUEENS COUNTY, NOVA SCOTIA. JOHN A. LESLIE AND ASSOCIATES LIMITED (FOR L. H. SOUTHWELL). REPORT ON RECONNAISSANCE GEOLOGICAL SURVEY, BY J. A. LESLIE, 1983. 6 PAGES; 2 MAP(S) (GEOLOGICAL; PROPERTY LOCATION)

21A/02D 21-N-34(01)

GOLD, DOLLIVER LAKE, QUEENS COUNTY, NOVA SCOTIA. W. A. MACPHERSON AND ASSOCIATES (FOR OCEAN WAYS MINERALS DEVELOPMENT CORPORATION). REPORT ON

GEOLOGICAL EVALUATION AND HUMUS GEOCHEMICAL SURVEY, BY W. A. MACPHERSON, 1984. 14 PAGES; 6 MAP(S) (BIOGEOCHEMICAL; GEOLOGICAL; PROPERTY LOCATION; STRUCTURAL)

21A/03B 51-P-14(01)

TIN, BALD MOUNTAIN, SHELBURNE COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED AND EASTERN GEOPHYSICS LIMITED (FOR BILLITON CANADA LIMITED). REPORT ON GEOLOGICAL, TILL AND ROCK GEOCHEMICAL SURVEYS AND IP/RESISTIVITY SURVEY, BY G. B. DICKIE, E. J. ZWICKER, 1983. 375 PAGES; 34 MAP(S) (IP LINES LOCATION; PROPERTY LOCATION; ROCK GEOCHEMICAL; TILL GEOCHEMICAL); FREQUENCY DISTRIBUTION GRAPHS; HISTOGRAMS; PSEUDO SECTIONS; STRATIGRAPHIC CHARTS

21A/04A 51-R-25(23)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIOALGOM LIMITED. REPORT ON DRILLING, BY O. BONHAM, 1983. 213 PAGES; 2 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS; DRILLHOLE SECTIONS

21A/04A 51-R-25(24)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. LAKEFIELD RESEARCH OF CANADA LIMITED (FOR RIO ALGOM LIMITED). REPORT ON MINERALOGICAL STUDY OF DRILL CORE SAMPLES, BY D. M. WYSLOUZIL, K. GOCHNAUER, 1983. 68 PAGES; 2 MAP(S) (PROPERTY LOCATION)

21A/04A 51-R-25(25)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. LAKEFIELD RESEARCH OF CANADA LIMITED (FOR RIO ALGOM LIMITED). REPORT ON METALLURGICAL TESTING OF TIN ORE, BY D. M. WYSLOUZIL, K. W. SARBUTT, 1983. 155 PAGES; 2 MAP(S) (PROPERTY LOCATION)

21A/04A 51-R-25(26)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED AND EASTERN GEOPHYSICS LIMITED (FOR RIO ALGOM LIMITED). REPORT ON IP SURVEY AND DRILLING, BY O. J. H. BONHAM, D. SEXSMITH, 1983. 54 PAGES; 4 MAP(S) (DRILLHOLE LOCATION; IP; IP LINES LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS; PSEUDO SECTIONS

21A/04A 51-R-25(27)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED AND EASTERN GEOPHYSICS LIMITED (FOR RIO ALGOM LIMITED). REPORT ON IP SURVEY AND DRILLING, BY O. J. H. BONHAM, D. SEXSMITH, 1983. 28 PAGES; 4 MAP(S) (DRILLHOLE LOCATION; IP; IP LINES LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS; PSEUDO SECTIONS

21A/04A 51-R-25(28)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED. REPORT ON BOULDER MAPPING, GROUND MAGNETIC AND GROUND RADIOMETRIC SURVEYS

AND DRILLING, BY O. J. H. BONHAM, 1983. 31 PAGES; 5 MAP(S) (DRILLHOLE LOCATION; MAGNETIC, GROUND; PROPERTY LOCATION; RADIOMETRIC, GROUND; SURFICIAL GEOLOGICAL); DRILLHOLE LOGS

21A/04A 51-R-25(29)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED AND EASTERN GEOPHYSICS LIMITED (FOR RIO ALGOM LIMITED). REPORT ON SOIL GEOCHEMICAL, GROUND MAGNETIC, GROUND GRAVITY AND GROUND RADIOMETRIC SURVEYS AND DRILLING, BY O. J. H. BONHAM, H. BECKMANN, 1983. 77 PAGES; 11 MAP(S) (DRILLHOLE LOCATION; GRAVITY, GROUND; MAGNETIC LINES LOCATION; MAGNETIC, GROUND; PROPERTY LOCATION; RADIOMETRIC, GROUND; SOIL GEOCHEMICAL); DRILLHOLE LOGS; DRILLHOLE SECTIONS; GRAVITY PROFILES

21A/04A 51-R-25(30)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED. REPORT ON DRILLING, BY O. J. H. BONHAM, 1983. 41 PAGES; 2 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS

21A/04B 21-R-25(02)

GOLD, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON A STREAM SEDIMENT GEOCHEMICAL SURVEY, BY D. L. BLACK, 1984. 4 PAGES; 7 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; STREAM SEDIMENT GEOCHEMICAL)

21A/04B 51-R-25(05)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED. REPORT ON SOIL GEOCHEMICAL SURVEY, OVERBURDEN DRILLING AND TRENCHING, BY O. J. H. BONHAM, 1983. 34 PAGES; 6 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION; SOIL GEOCHEMICAL; TRENCH GEOLOGY; TRENCH LOCATION); DRILLHOLE LOGS

21A/04B 51-R-25(06)

TIN, EAST KEMPTVILLE, YARMOUTH COUNTY, NOVA SCOTIA. RIO ALGOM LIMITED. REPORT ON SOIL GEOCHEMICAL SURVEY AND DRILLING, BY O. J. H. BONHAM, 1983. 47 PAGES; 5 MAP(S) (DRILLHOLE LOCATION; GRAVITY, GROUND; PROPERTY LOCATION; SOIL GEOCHEMICAL); DRILLHOLE LOGS

21A/06A 21-W-26(11)

GOLD, WHITEBURN, QUEENS COUNTY, NOVA SCOTIA. R. M. WHITELAW (FOR WHITEBURN PRECIOUS METALS LIMITED AND M. RIDDELL). REPORT ON AIR PHOTO STRUCTURAL INTERPRETATIONS, WASTE DUMP SAMPLING, GEOLOGICAL MAPPING, ROCK, TILL AND STREAM SEDIMENT GEOCHEMICAL SURVEYS, BIOGEOCHEMICAL SURVEY, GROUND MAGNETIC SURVEY AND DRILLING, BY R. M. WHITELAW, D. M. WOLFE, 1983. 87 PAGES; 5 MAP(S) (BIOGEOCHEMICAL; DRILLHOLE LOCATION; GEOLOGICAL; MAGNETIC LINES LOCATION; MINE SURFACE PLANS; ROCK GEOCHEMICAL; STREAM SEDIMENT GEOCHEMICAL; TILL GEOCHEMICAL); DRILLHOLE LOGS

21A/06A 51-H-06(04)

TIN, CALEDONIA, QUEENS COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED. REPORT ON DRILLING, BY G. MACGILLIVRAY, 1983. 45 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS; DRILLHOLE SECTIONS

21A/06A 51-H-06(05)

TIN, CALEDONIA, QUEENS COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED, NORTH-EAST EXPLORATION LIMITED AND EASTERN GEOPHYSICS LIMITED. REPORT ON GEOLOGICAL, ROCK GEOCHEMICAL, GROUND MAGNETIC, GROUND GRAVITY, GROUND VLF AND IP/RESISTIVITY SURVEYS, BY G. B. DICKIE, 1983. 20 PAGES; 12 MAP(S) (GEOLOGICAL; GRAVITY, GROUND; MAGNETIC, GROUND; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK GEOCHEMICAL; VLF, GROUND); PSEUDO SECTIONS

21A/06D 21-A-29(01)

GOLD, MAITLAND BRIDGE, ANNAPOLIS COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON GEOLOGICAL, ROCK, TILL AND STREAM SEDIMENT HEAVY MINERALS GEOCHEMICAL SURVEYS, BY L. D. RANKIN, 1984. 17 PAGES; 3 MAP(S) (GEOLOGICAL; HEAVY MINERALS SAMPLE LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; SOIL SAMPLE LOCATION; STREAM SEDIMENT SAMPLE LOCATION)

21A/07A 21-L-17(09)

GOLD, LEIPSIGATE, LUNENBURG COUNTY, NOVA SCOTIA. J. S. VINCENT (FOR BEAR PASS RESOURCES CORPORATION). REPORT ON GEOLOGICAL, SOIL GEOCHEMICAL AND GROUND EM SURVEYS, BY J. S. VINCENT, 1984. 21 PAGES; 11 MAP(S) (EM, GROUND; GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION; SOIL GEOCHEMICAL)

21A/07A 21-L-56(01)

GOLD, ELIZABETH LAKE, LUNENBURG COUNTY, NOVA SCOTIA. W. A. MACPHERSON AND ASSOCIATES (FOR OCEAN WAYS MINERALS DEVELOPMENT CORPORATION). REPORT ON GEOLOGICAL EVALUATION AND HUMUS GEOCHEMICAL SURVEY, BY W. A. MACPHERSON, 1984. 13 PAGES; 6 MAP(S) (BIOGEOCHEMICAL; GEOLOGICAL; PROPERTY LOCATION; STRUCTURAL)

21A/07C 51-H-33(01)

TIN, CRANBERRY LAKE, QUEENS COUNTY, NOVA SCOTIA. DALE ENTERPRISES LIMITED. REPORT ON PROSPECTING, BY D. M. NEIMA, 1982. 5 PAGES; 2 MAP(S) (GEOLOGICAL; PROPERTY LOCATION)

21A/07C 51-H-33(02)

TIN, CRANBERRY LAKE, QUEENS COUNTY, NOVA SCOTIA. DALE ENTERPRISES LIMITED. PROSPECTOR'S NOTES, BY D. NEIMA, 1984. 2 PAGES; 1 MAP (PROPERTY LOCATION)

21A/08C 21-L-03(10)

GOLD, BLOCKHOUSE, LUNENBURG COUNTY, NOVA SCOTIA. JAMES E. TILSLEY AND ASSOCIATES LIMITED (FOR FIRST OHIO EXPLORATIONS INCORPORATED, BLOCKHOUSE RESOURCES LIMITED, GOLDEN SHADOW RESOURCES INCORPORATED AND W. LOCKERBY). REPORT ON EXPLORATION PROPOSAL, BY J. E. TILSLEY, 1983. 40 PAGES; 5 MAP(S) (DRILLHOLE LOCATION; GEOLOGICAL; MINE LEVEL PLANS; MINE SURFACE PLANS; PROPERTY LOCATION); MINE CROSS-SECTIONS

21A/08C 21-L-03(11)

GOLD, BLOCKHOUSE, LUNENBURG COUNTY, NOVA SCOTIA. JAMES E. TILSLEY AND ASSOCIATES LIMITED (FOR BLOCKHOUSE RESOURCES LIMITED AND GOLDEN SHADOW RESOURCES INCORPORATED). REPORT ON HISTORY OF PAST PRODUCTION, GEOLOGY AND DRILLING, GROUND MAGNETIC AND GROUND VLF SURVEYS, BY J. E. TILSLEY, 1983. 46 PAGES; 8 MAP(S) (DRILLHOLE LOCATION; MAGNETIC, GROUND; MINE LEVEL PLANS; PROPERTY LOCATION; VLF, GROUND); MINE CROSS-SECTIONS

21A/09B 21-L-09(17)

GOLD, GOLD RIVER, LUNENBURG COUNTY, NOVA SCOTIA. C. KAIZER. PROSPECTOR'S NOTES ON PROSPECTING AND TRENCHING, BY C. KAIZER, 1983. 4 PAGES; 1 MAP (PROPERTY LOCATION; TRENCH LOCATION)

21A/09B 21-L-09(18)

GOLD, GOLD RIVER, LUNENBURG COUNTY, NOVA SCOTIA. J. E. RIDDELL (FOR W. LOCKERBY AND INTERNATIONAL GEOCHEMICAL ASSOCIATES LIMITED). REPORT ON PRELIMINARY GEOLOGICAL SURVEY, BY J. E. RIDDELL, 1983. 6 PAGES; 1 MAP (PROPERTY LOCATION)

21A/09B 21-L-22(01)

GOLD, OAK ISLAND, LUNENBURG COUNTY, NOVA SCOTIA. D. C. BLANKENSHIP. PROSPECTOR'S REPORT ON DRILLING, BY D. C. BLANKENSHIP, 1984. 2 PAGES; 1 MAP (DRILLHOLE LOCATION); DRILLHOLE SECTIONS

21A/09C 51-L-19(01)

TIN, NEW ROSS, LUNENBURG COUNTY, NOVA SCOTIA. KIDD CREEK MINES LIMITED. REPORT ON GEOLOGICAL, ROCK AND TILL GEOCHEMICAL SURVEYS, BY D. R. DUNCAN, 1983. 35 PAGES; 8 MAP(S) (GEOLOGICAL; METALLIC MINERAL LOCATION; PROPERTY LOCATION; RADIOMETRIC, AIRBORNE; ROCK SAMPLE LOCATION; TILL SAMPLE LOCATION; VLF, AIRBORNE)

21A/10A 51-L-54(03)

TIN, WHALE LAKE, LUNENBURG COUNTY, NOVA SCOTIA. KIDD CREEK MINES LIMITED (FOR KIDD CREEK MINES LIMITED, CANTERRA ENERGY LIMITED AND DOME PETROLEUM LIMITED). REPORT ON GEOLOGY, SOIL, TILL AND ROCK GEOCHEMICAL SURVEYS, IP SURVEY AND TRENCHING, BY M. C. COREY, 1983. 128 PAGES; 16 MAP(S) (GEOLOGICAL; HEAVY MINERALS GEOCHEMICAL; METALLIC MINERAL LOCATION; SOIL GEOCHEMICAL; TILL GEOCHEMICAL); HISTOGRAMS; IP PROFILES; PSEUDO SECTIONS; TERNARY DIAGRAMS; VARIATION DIAGRAMS

21A/10B 21-L-48(02)

GOLD, HEMFORD, LUNENBURG COUNTY, NOVA SCOTIA. NOVEX RESOURCE MANAGEMENT. REPORT ON SOIL AND HUMUS GEOCHEMICAL SURVEY, BY R. BAKER, 1984. 4 PAGES; 2 MAP(S) (PROPERTY LOCATION; SOIL SAMPLE LOCATION)

21A/10C 51-K-28(03)

TIN, EAST DALHOUSIE, KINGS COUNTY, NOVA SCOTIA. ESSO RESOURCES CANADA LIMITED AND NORTHEAST EXPLORATION SERVICES LIMITED (FOR ESSO RESOURCES CANADA LIMITED). REPORT ON GEOLOGICAL, STREAM SEDIMENT AND TILL GEOCHEMICAL SURVEYS AND TRENCHING, BY J. L. MACLEOD, 1983. 34 PAGES; 9 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; TILL GEOCHEMICAL)

21A/10C 51-K-28(04)

TIN, EAST DALHOUSIE, KINGS COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED AND TERENEX LIMITED (FOR BILLITON CANADA LIMITED). REPORT ON GEOLOGICAL, ROCK GEOCHEMICAL AND GROUND MAGNETIC SURVEYS, BY G. MACGILLIVRAY, 1983. 11 PAGES; 5 MAP(S) (GEOLOGICAL; MAGNETIC, GROUND; METALLIC MINERAL LOCATION; PROPERTY LOCATION; ROCK SAMPLE LOCATION)

21A/14D 21-A-30(01)

GOLD, TORBROOK WEST, ANNAPOLIS COUNTY, NOVA SCOTIA. ACADIA MINERAL VENTURES LIMITED. REPORT ON GEOLOGICAL, ROCK AND STREAM SEDIMENT HEAVY MINERALS GEOCHEMICAL SURVEYS, BY L. D. RANKIN, 1984. 19 PAGES; 4 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; ROCK SAMPLE LOCATION; STREAM SEDIMENT GEOCHEMICAL); STRATIGRAPHIC CHARTS

21A/16B 51-L-19(05)

TIN, NEW ROSS, LUNENBURG COUNTY, NOVA SCOTIA. KIDD CREEK MINES LIMITED. REPORT ON ROCK AND TILL GEOCHEMICAL SURVEYS, BY D. R. DUNCAN, 1983. 23 PAGES; 6 MAP(S) (GEOLOGICAL; PROPERTY LOCATION; TILL SAMPLE LOCATION); VARIATION DIAGRAMS

21A/16B 51-L-38(02)

TIN, WALLABACK LAKE, LUNENBURG COUNTY, NOVA SCOTIA. AERODAT LIMITED (FOR KIDD CREEK MINES LIMITED). REPORT ON AIRBORNE EM SURVEY, BY R. L. HOGG, 1982. 69 PAGES; 6 MAP(S) (EM, AIRBORNE; MAGNETIC, AIRBORNE; PROPERTY LOCATION; VLF, AIRBORNE)

21H/01D 07-I-51(10)

BASE METALS, WALTON, HANTS COUNTY, NOVA SCOTIA. BILLITON CANADA LIMITED (FOR B. DUNLOP). REPORT ON THE GEOCHEMISTRY OF TILL AND TILL HEAVY MINERALS FROM AUGERED DRILLHOLES, BY G. MACGILLIVRAY, 1983. 22 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; PROPERTY LOCATION); DRILLHOLE LOGS; DRILLHOLE SECTIONS

21H/01D 39-I-25(02)

PETROLEUM, MINAS BASIN AREA, HANTS COUNTY, NOVA SCOTIA. SHAWNEE PETROLEUMS LIMITED. REPORT ON GEOLOGY AND HYDROCARBON POTENTIAL, BY B. G. CAMERON, 1972. 73 PAGES; SEDIMENT PROPERTIES GRAPHS

21H/07D 21-E-68(01)

GOLD, MAHONEY BROOK, CUMBERLAND COUNTY, NOVA SCOTIA. V. F. BENNETT. PROSPECTOR'S NOTES, BY V. F. BENNETT, 1983. 3 PAGES

21H/09D 10-E-41(06)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. NORWEST RESOURCE CONSULTANTS LIMITED (FOR NOVACO LIMITED). REPORT ON FEASIBILITY STUDY , BY NORWEST RES CNSLTS L, 1981. 25 PAGES

21H/09D 10-E-41(07)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. NORWEST RESOURCE CONSULTANTS LIMITED (FOR NOVACO LIMITED). REPORT ON FUTURE EXPLORATION ACTIVITIES, BY NORWEST RES CNSLTS L, 1981. 17 PAGES

21H/09D 10-E-41(08)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. NORWEST RESOURCE CONSULTANTS LIMITED. PROGRESS REPORT ON GEOLOGICAL EVALUATION OF THE EXPLORATION PROGRAM, BY NORWEST RES CNSLTS L, 1981. 13 PAGES; 1 MAP (CROSS-SECTION LOCATION; LINEAMENTS; MINE SURFACE PLANS); CROSS-SECTIONS; HISTOGRAMS; STRATIGRAPHIC COLUMNS

21H/09D 10-E-41(09)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. K. WARDELL AND PARTNERS. REPORT ON MINE FEASIBILITY STUDY, BY P. EYNON, 1981. 30 PAGES; DRILLHOLE SECTIONS

21H/09D 10-E-41(10)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. PRECAMBRIAN SHIELD RESOURCES LIMITED (FOR NOVACO LIMITED). REPORT ON MINE DEVELOPMENT PROPOSAL, BY PRECAMBRIAN SHIELD RES L, 1983. 15 PAGES; 4 MAP(S) (COAL SEAM LOCATION; DRILLHOLE LOCATION; LINEAMENTS; MINE LEVEL PLANS; MINE SURFACE PLANS); CROSS-SECTIONS

21H/09D 10-E-41(11)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. NORWEST RESOURCE CONSULTANTS LIMITED (FOR NOVACO LIMITED). REPORT ON PRELIMINARY EVALUATION OF MINE PROPOSALS, BY NORWEST RES CNSLTS L, 1981. 28 PAGES

21H/09D 10-E-41(12)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. EAC INTERNATIONAL LIMITED. REPORT ON EXPLORATION AND DEVELOPMENT PROPOSALS, BY EAC INTERNAT L, 1981. 59 PAGES

21H/09D 10-E-41(13)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. EAC INTERNATIONAL LIMITED. REPORT ON MINE DEVELOPMENT PROPOSAL, BY EAC INTERNAT L, 1980. 55 PAGES; CROSS-SECTIONS

21H/09D 10-E-41(14)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. MARSTON AND MARSTON INCORPORATED. REPORT ON MINE FEASIBILITY STUDY, BY MARSTON AND MARSTON INC, 1980. 29 PAGES

21H/09D 10-E-41(15)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. K. WARDELL AND PARTNERS. REPORT ON MINE FEASIBILITY STUDY, BY K. WARDELL, 1980. 44 PAGES; 9 MAP(S) (COAL SEAM LOCATION; DRILLHOLE LOCATION; ISOPACHS; MINE LEVEL PLANS; MINE SURFACE PLANS; STRUCTURAL CONTOUR); CORRELATION SECTIONS; DRILLHOLE SECTIONS

21H/09D 10-E-41(16)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. JACQUES WHITFORD AND ASSOCIATES LIMITED (FOR INDUSTRIAL ESTATES LIMITED). REPORT ON MINING SUBSIDENCE, BY C. MACGILLIVRAY, A. J. VALSANGKAR, 1978. 20 PAGES; 2 MAP(S) (COAL SEAM LOCATION; MINE LEVEL PLANS; MINE SURFACE PLANS); CROSS-SECTION

21H/09D 10-E-41(17)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. GEORGE WIMPEY CANADA LIMITED. REPORT ON PROPOSAL FOR COAL RESOURCE DEVELOPMENT, BY GEORGE WIMPEY CAN L, 1976. 48 PAGES; 1 MAP

21H/09D 10-E-41(18)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. PAUL WENDT LIMITED. REPORT ON WATER SUPPLY FOR EXTINGUISHING COAL DUMP FIRE, BY PAUL WENDT L, 1972. 16 PAGES; 1 MAP (COAL DUMP RECLAMATION; DRAINAGE)

21H/09D 10-E-41(19)

COAL, SPRINGHILL, CUMBERLAND COUNTY, NOVA SCOTIA. FOX BUILDINGS LIMITED. REPORT ON PROPOSAL TO EXTINGUISH COAL DUMP FIRE, BY FOX BUILDINGS L, 1968. 7 PAGES

21H/09D 39-E-10(01)

PETROLEUM, CUMBERLAND BASIN, CUMBERLAND COUNTY, NOVA SCOTIA. MANDREL CANADA LIMITED (FOR ANSCHUTZ EXPLORATION LIMITED). REPORT ON SEISMIC INTERPRETATIONS, AND HYDROCARBON POTENTIAL, BY Y. C. ATHIAS, 1972. 9 PAGES; 3 MAP(S) (DRILLHOLE LOCATION; STRUCTURAL CONTOUR)

21H/09D 39-E-10(02)

PETROLEUM, CUMBERLAND BASIN, CUMBERLAND COUNTY, NOVA SCOTIA. NOVA SCOTIA RESEARCH FOUNDATION (FOR ANSCHUTZ CANADA EXPLORATION LIMITED). REPORT ON GROUND GRAVITY SURVEY, BY K. HOWELLS, 1972. 25 PAGES; 3 MAP(S) (GRAVITY, GROUND; SUBSURFACE TOPOGRAPHIC); DENSITY PROFILES

21H/09D 39-E-10(03)

PETROLEUM, CUMBERLAND BASIN, CUMBERLAND COUNTY (AND SYDNEY BASIN, CAPE BRETON COUNTY), NOVA SCOTIA. MANDREL CANADA LIMITED (FOR ANSCHUTZ CANADA EXPLORATION LIMITED). REPORT ON SEISMIC SURVEY AND HYDROCARBON POTENTIAL, BY H. MCGREGOR, 1972. 22 PAGES; 3 MAP(S) (PROPERTY LOCATION; SEISMIC LINES LOCATION); SEISMIC PROFILES

21H/09D 39-E-10(04)

PETROLEUM, CUMBERLAND BASIN, CUMBERLAND COUNTY (AND SYDNEY BASIN, CAPE BRETON COUNTY), NOVA SCOTIA. ANSCHUTZ CORPORATION INCORPORATED. REPORT ON EXPLORATION ACTIVITIES, BY M. A. WILLIAMS, 1973. 19 PAGES

OFFSHORE 39-W-15(01)

PETROLEUM, OFFSHORE, NORTHUMBERLAND STRAIT, NOVA SCOTIA. SCHLUMBERGER CANADA LIMITED AND WESTERN OFFSHORE DRILLING AND EXPLORATION COMPANY (FOR HUDSONS BAY OIL AND GAS COMPANY LIMITED). REPORT ON HB FINA NORTHUMBERLAND F-25 WELL HISTORY, GEOLOGY, DRILL STEM AND FORMATION TESTS AND PETROGRAPHIC ANALYSES, BY W. D. STOREY, 1970. 27 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; NEUTRON LOGS; PETROGRAPHIC LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS

OFFSHORE 39-W-15(02)

PETROLEUM, OFFSHORE, NORTHUMBERLAND STRAIT, NOVA SCOTIA. SOQUIP, SCHLUMBERGER CANADA LIMITED, FINA RESOURCES INCORPORATED AND DOME PETROLEUM LIMITED (FOR HUDSONS BAY OIL AND GAS COMPANY). REPORT ON EAST POINT E-49 WELL HISTORY AND PRODUCTION TESTS, BY SOQUIP, FINA RES INC, DOME PETR L, SCHLUMBERGER CAN L, 1982. 19 PAGES; 3 MAP(S) (DRILL HOLE LOCATION; SEISMIC, MARINE); DENSITY LOGS; DIPMETER LOGS; DRILL HOLE LOGS; DUAL INDUCTION LOGS; NEUTRON LOGS; PETROGRAPHIC LOGS; SEISMIC PROFILES; SONIC LOGS; STRATIGRAPHIC COLUMNS

OFFSHORE 39-W-17(01)

PETROLEUM, OFFSHORE, ARTIMON BANK, NOVA SCOTIA. SCHLUMBERGER CANADA LIMITED AND SOUTHEASTERN COMMONWEALTH DRILLING WESTERN LIMITED (FOR MOBIL OIL CANADA LIMITED). REPORT ON ADVENTURE F-80 WELL HISTORY, GEOLOGY, AND HYDRO-

CARBON POTENTIAL, BY M. E. KEOWN, B. W. BINT, 1975. 26 PAGES; DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; NEUTRON LOGS; PETROGRAPHIC LOGS; SONIC LOGS; STRATIGRAPHIC CHARTS (COGLA # 8611-M3-3-5)

OFFSHORE 39-W-18(01)

PETROLEUM, OFFSHORE, BACCARO BANK, NOVA SCOTIA. SCHLUMBERGER CANADA LIMITED AND SOUTHEASTERN COMMONWEALTH DRILLING LIMITED (FOR MOBIL OIL CANADA LIMITED). REPORT ON MONTAGNAIS I-94 WELL HISTORY, AND GEOLOGY, BY L. B. MACRAE, 1974. 48 PAGES; DENSITY LOGS; DIPMETER LOGS; DRILL HOLE LOGS; DUAL INDUCTION LOGS; PETROGRAPHIC LOGS; SONIC LOGS (COGLA # 8611-U3-1-5)

OFFSHORE 39-W-19(01)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SHELL CANADA LIMITED AND SOUTHEASTERN COMMONWEALTH DRILLING LIMITED (FOR MOBIL OIL CANADA LIMITED AND PETRO-CANADA EXPLORATION INCORPORATED). REPORT ON HESPER I-52 WELL, GEOLOGY, AND DAILY DRILLING, BY S E COMMONWEALTH DRILLING L, SHELL CAN RES L, 1976. 68 PAGES; (COGLA # 8611-P28-1-2)

OFFSHORE 39-W-19(02)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SHELL CANADA LIMITED AND SCHLUMBERGER CANADA LIMITED (FOR MOBIL OIL CANADA LIMITED). REPORT ON ESPERANTO K-78 WELL HISTORY, GEOLOGY, CORE ANALYSES AND HYDROCARBON POTENTIAL, BY T. R. BRAND, W. H. MONRO, A. S. WARDEN, 1972. 68 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; GAMMA RAY LOGS; NEUTRON LOGS; PETROGRAPHIC LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-M3-2-1)

OFFSHORE 39-W-19(03)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SHELL CANADA LIMITED (FOR PETRO-CANADA INCORPORATED). REPORT ON MIC MAC D-89 WELL, GEOLOGY, FORMATION TESTS AND CORE ANALYSES, BY SHELL CAN RES L, 1976. 100 PAGES; 2 MAP(S) (DRILLHOLE LOCATION); DRILLHOLE LOGS (COGLA # 8611-P28-1-1)

OFFSHORE 39-W-19(04)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SEA DRILLING NETHERLANDS COMPANY AND CORE LABORATORIES CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT ON MIC MAC H-86 WELL HISTORY, GEOLOGY, FORMATION TESTS, CORE ANALYSES, SOURCE ROCK ANALYSES, AND HYDROCARBON POTENTIAL, BY G. ROBERTSON, 1971. 123 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-1-7)

OFFSHORE 39-W-19(05)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SEA DRILLING NETHERLANDS COMPANY, CORE LABORATORIES CANADA LIMITED AND SCHLUMBERGER CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT ON MIC MAC J-77 WELL HISTORY, GEOLOGY, FORMATION WATER, OIL, AND GAS ANALYSES AND WIRELINE TESTS, BY G. ROBERTSON,

1971. 120 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-1-4)

OFFSHORE 39-W-19(06)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SOUTHEASTERN COMMONWEALTH LIMITED AND SCHLUMBERGER CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT ON TUSCARORA D-61 WELL HISTORY, GEOLOGY, AND HYDROCARBON POTENTIAL, BY SOUTHEASTERN COMMONWEALTH L, SCHLUMBERGER CAN L, 1973. 106 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS (COGLA # 8611-S6-2-18)

OFFSHORE 39-W-19(07)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SOUTHEASTERN COMMONWEALTH DRILLING LIMITED AND SCHLUMBERGER CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT ON CHIPPEWA G-67 WELL HISTORY, GEOLOGY, SOURCE ROCK ANALYSES AND HYDROCARBON POTENTIAL, BY G. ROBERTSON, 1972. 114 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-2-11)

OFFSHORE 39-W-19(08)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SEA DRILLING NETHERLANDS COMPANY AND SCHLUMBERGER CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT ON CHIPPEWA L-75 WELL HISTORY, GEOLOGY, CORE ANALYSES, SOURCE ROCK ANALYSES, AND HYDROCARBON POTENTIAL, BY G. ROBERTSON, 1971. 89 PAGES; DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-1-12)

OFFSHORE 39-W-19(09)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SEA DRILLING NETHERLANDS COMPANY AND SCHLUMBERGER CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT ON HURON P-96 WELL HISTORY, GEOLOGY, AND SOURCE ROCK ANALYSES, BY G. ROBERTSON, 1971. 50 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-1-6)

OFFSHORE 39-W-19(10)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SCHLUMBERGER CANADA LIMITED AND SEA DRILLING NETHERLANDS COMPANY (FOR SHELL CANADA LIMITED). REPORT ON SAUK A-57 WELL HISTORY, GEOLOGY, SOURCE ROCK ANALYSES, AND HYDROCARBON POTENTIAL, BY G. ROBERTSON, 1971. 77 PAGES; DENSITY LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-1-11)

OFFSHORE 39-W-19(11)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SEA DRILLING NETHERLANDS COMPANY AND SCHLUMBERGER CANADA LIMITED (FOR SHELL CANADA LIMITED). REPORT

ON MISSISAUGA H-54 WELL HISTORY, GEOLOGY, FORMATION TESTS, FORMATION WATER ANALYSES, SOURCE ROCK ANALYSES, AND HYDROCARBON POTENTIAL, BY G. ROBERTSON, 1971. 99 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DIRECTIONAL LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; SONIC LOGS; STRATIGRAPHIC COLUMNS (COGLA # 8611-S6-1-5)

OFFSHORE 39-W-19(12)

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OFFSHORE 39-W-19(13)

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OFFSHORE 39-W-19(14)

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OFFSHORE 39-W-19(15)

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OFFSHORE 39-W-19(16)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. CORE LABORATORIES CAN LTD., BOW VALLEY OFFSHORE EXPL INC. AND SCHLUMBERGER CAN LTD. (FOR PETRO-CANADA EXPLORATION INCORPORATED). REPORT ON BANQUEREAU C-21 WELL HISTORY, GEOLOGY, DRILL STEM TESTS, MARINEMAGNETIC SURVEYS, FORMATION TESTS, CORE ANALYSES, OIL ANALYSES, AND FORMATION WATER ANALYSES, BY G. B. STEEVES, 1982. 367 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; HISTOGRAMS; PETROGRAPHIC LOGS; SONIC LOGS; STRATIGRAPHIC CHARTS

OFFSHORE 39-W-19(17)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. PETRO-CANADA EXPLORATION INCORPORATED. REPORT ON BANQUEREAU C-21 DRILLING PROGRAM, HYDROCARBON POTENTIAL, STRATIGRAPHY, AND GEOLOGY, BY D. E. DUFF, 1981. 140 PAGES; 5 MAP(S) (CURRENT DIRECTIONS; DRILLHOLE LOCATION; STRUCTURAL CONTOUR); SEISMIC PROFILES; STRATIGRAPHIC COLUMNS (COGLA # 8611-P28-2-1)

OFFSHORE 39-W-19(18)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. BOW VALLEY OFFSHORE EXPLORATION INCORPORATED, CORE LABORATORIES CANADA LIMITED AND SPERRY-SUN CANADA (FOR PETRO-CANADA EXPLORATION LIMITED). REPORT ON NORTH BANQUEREAU I-13 WELL HISTORY, GEOLOGY, CORE ANALYSES, REPEAT FORMATION TESTS, AND DIRECTIONAL SURVEYS, BY G. B. STEEVES, 1983. 263 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DUAL INDUCTION LOGS; HISTOGRAMS; PETROGRAPHIC LOGS; SONIC LOGS; STRATIGRAPHIC CHARTS (COGLA # 8611-P28-2-2)

OFFSHORE 39-W-19(19)

PETROLEUM, OFFSHORE, BANQUEREAU BANK, NOVA SCOTIA. SCHLUMBERGER CANADA LIMITED AND SOUTHEASTERN COMMONWEALTH DRILLING (FOR SHELL CANADA RESOURCES AND PETRO CANADA RESOURCES). REPORT ON MIC-MAC D-89 WELL HISTORY AND DIPMETER LOGGING, BY SCHLUMBERGER CAN L, S E COMMONWEALTH DRILLING L, 1976. 367 PAGES; 1 MAP (DRILLHOLE LOCATION); DIPMETER LOGS; DRILLHOLE LOGS (COGLA # 8611-P28-1-1)

OFFSHORE 39-W-19(20)

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OFFSHORE 39-W-19(21)

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OFFSHORE 39-W-19(22)

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P. MEADE-CLIFT, O. P. MOLLER, 1982. 123 PAGES; 5 MAP(S) (CURRENT DIRECTIONS; DRILLHOLE LOCATION; STRUCTURAL CONTOUR); SEISMIC PROFILES; STRATIGRAPHIC COLUMNS

OFFSHORE 39-W-19(23)

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OFFSHORE 39-W-19(24)

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OFFSHORE 39-W-21(01)

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OFFSHORE 39-W-21(02)

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OFFSHORE 39-W-22(01)

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OFFSHORE 39-W-23(01)

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OFFSHORE 39-W-23(02)

PETROLEUM, OFFSHORE, CAPE BRETON CHANNEL, NOVA SCOTIA. MURPHY OIL CANADA LIMITED. REPORT ON NORTH SYDNEY P-05 SOURCE ROCKS, VITRINITE REFLECTANCE, COAL ANALYSES, ORGANIC CARBON, AND HYDROCARBON POTENTIAL, BY B. S. COOPER, P. C. BARNARD, S. H. COLEMAN, C. DARLINGTON, J. S. BUTTERWORTH, 1974. 39 PAGES; (COGLA # 8611-M6-2-1)

OFFSHORE 39-W-23(03)

PETROLEUM, OFFSHORE, CAPE BRETON CHANNEL, NOVA SCOTIA. ROBERTSON RESEARCH (NORTH AMERICA) LIMITED. REPORT ON NORTH SYDNEY P-05 MICROPALEONTOLOGY, PALYNOLOGY, AND DEPOSITIONAL HISTORY, BY D. R. CLOWSER, J. K. LENTIN, 1974. 16 PAGES; 1 MAP (DRILLHOLE LOCATION); STRATIGRAPHIC COLUMNS (COGLA # 8611-M6-2-1)

OFFSHORE 39-W-23(04)

PETROLEUM, OFFSHORE, CAPE BRETON CHANNEL, NOVA SCOTIA. GEOPHYSICAL SERVICES INCORPORATED (FOR MURPHY OIL COMPANY LIMITED). REPORT ON MARINE SEISMIC SURVEYS, BY G. B. CARSON, G. SHILLIDAY, J. W. CLINK, 1972. 49 PAGES; 1 MAP (SEISMIC LINES LOCATION)

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OFFSHORE 39-W-24(05)

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OFFSHORE 39-W-27(01)

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OFFSHORE 39-W-27(03)

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OFFSHORE 39-W-28(01)

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R. E. MCLENNAN, 1974. 133 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; NEUTRON LOGS; SONIC LOGS; STRATIGRAPHIC CHARTS (COGLA # 8611-M3-3-3)

OFFSHORE 39-W-28(03)

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OFFSHORE 39-W-28(04)

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OFFSHORE 39-W-28(05)

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OFFSHORE 39-W-28(06)

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PETROLEUM, OFFSHORE, SABLE ISLAND BANK, NOVA SCOTIA. SCHLUMBERGER CANADA LIMITED AND CORE LABORATORIES CANADA LIMITED (FORMOBIL OIL CANADA LIMITED). REPORT ON COHASSET D-42 WELL HISTORY, FORMATION WATER, GAS AND OIL ANALYSES, AND PRODUCTION AND DRILL STEM TESTS, BY W. E. DAWSON, 1973. 135 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; PETROGRAPHIC LOGS; SONIC LOGS; STRATIGRAPHIC CHARTS; STRATIGRAPHIC COLUMNS (COGLA # 8611-M3-3-2)

OFFSHORE 39-W-28(08)

PETROLEUM, OFFSHORE, SABLE ISLAND BANK, NOVA SCOTIA. CORE LABORATORIES CANADA LIMITED (FOR SHELL CANADA RESOURCES LIMITED). REPORT ON ONONDAGA B-96 WELL HISTORY, DAILY DRILLING REPORTS, GEOLOGY, FORMATION AND WIRELINE TESTS AND CORE ANALYSES, BY CORE LABORATORIES CAN L, 1976. 80 PAGES; 1 MAP (DRILLHOLE LOCATION); DENSITY LOGS; DIPMETER LOGS; DRILLHOLE LOGS; DUAL INDUCTION LOGS; NEUTRON LOGS; SONIC LOGS (COGLA # 8611-S6-2-20)

OFFSHORE 39-W-28(09)

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OFFSHORE 39-W-28(14)

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CAMBRIAN VOLCANISM IN NOVA SCOTIA, CANADA BY J. B. MURPHY, K. J. CAMERON, J. DOSTAL, J. D. KEPPIE, A. J. HYNES, 1985. 6 PAGES; 6 MAPS (ROCK SAMPLE LOCATION)

604

EVALUATION OF NEAR-SURFACE COAL PROSPECTS, DONKIN, CAPE BRETON COUNTY, BY D. J. MACNEIL, 1984. 66 PAGES; 1 MAP (COAL SEAM LOCATION; CROSS-SECTION LOCATION; DRILLHOLE LOCATION); DRILLHOLE LOGS; DRILLHOLE SECTIONS; STRATIGRAPHIC COLUMNS

605

REGIONAL LAKE SEDIMENT SURVEY OF THE MEGUMA ZONE, SOUTHERN NOVA SCOTIA: NEW ANALYTICAL DATA, BY P. J. ROGERS, M. A. MACDONALD, D. W. RIGBY, 1985. 65 PAGES, 2 MAPS (LAKE SEDIMENT SAMPLE LOCATION)

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INDUSTRIAL MINERAL OCCURRENCES MAP AND DATA COMPILATION, CENTRAL NOVA SCOTIA - MAP SHEETS 11D AND 11E, BY M. PONSFORD, G. DEMONT, N. A. LYTTLE, 1985. 22 PAGES; 2 MAPS (GEOLOGICAL; INDUSTRIAL MINERAL LOCATION; NTS DIVISIONS)

607

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BENEFICIATION OF BARITE-FLUORITE FROM LAKE AINSLIE, NOVA SCOTIA, BY F. H. HARTMAN, R. A. WYMAN, 1968. 30 PAGES (MINES BRANCH INVESTIGATION REPORT IR 68-70)

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THE EXTRACTION OF GOLD FROM THE AURIFEROUS CONCENTRATES OF NOVA SCOTIA, BY CANADA DEPT MINES, 1941. 20 PAGES; PHOTOMICROGRAPHS (MINES BRANCH INVESTIGATION NO. 973)

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RECOVERY OF GOLD FROM A SMALL SAMPLE OF ORE FROM CHARLOTTE LAKE, GUYSBOROUGH COUNTY, NOVA SCOTIA, BY T. F. BERRY, R. W. BRUCE, 1969. 7 PAGES (MINES BRANCH INVESTIGATION REPORT IR 69-43)

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TREATMENT TESTS ON A GOLD ORE FROM HOMANY GOLD MINES, LIMITED, AT CALEDONIA, GUYSBOROUGH COUNTY, NOVA SCOTIA, BY W. HUTCHINGS, 1953. 10 PAGES

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THE RECOVERY OF HEAVY MINERALS FROM A SAMPLE OF PRECONCENTRATED BEACH SAND FROM SABLE ISLAND, NOVA SCOTIA, BY G. O. HAYSLIP, 1970. 10 PAGES (MINES BRANCH INVESTIGATION REPORT IR 70-56)

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CONCENTRATION OF SCHEELITE ORE FROM INDIAN PATH MINES, LUNENBURG, NOVA SCOTIA, BY C. S. PARSONS, 1932. 8 PAGES (MINES BRANCH REPORT)

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SINK AND FLOAT TESTS, FOLLOWED BY INDICATIVE CONCENTRATION OF PRODUCTS, ON SCHEELITE ORE FROM THE INDIAN PATH MINE, LUNENBURG COUNTY, NOVA SCOTIA, BY CANADA DEPT MINES, 1940. 11 PAGES (MINES BRANCH INVESTIGATION NO. 910)

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GOLD ORE FROM THE KING FISSUREMINE, BROOKFIELD MINES, QUEENS COUNTY, NOVA SCOTIA, BY CANADA DEPT MINES, 1939. 22 PAGES

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GOLD ORE FROM THE BROOKFIELD GOLD DISTRICT OF NOVA SCOTIA, BY CANADA DEPT MINES, 1941. 10 PAGES (MINES BRANCH INVESTIGATION NO. 944)

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POTASH DEPOSITS OF ATLANTIC CANADA WITH SPECIAL REFERENCE TO NEW BRUNSWICK, BY R. R. POTTER, 1980. 38 PAGES; 7 MAPS (CROSS-SECTION LOCATION; GEOLOGICAL; INDUSTRIAL MINERAL LOCATION); CROSS-SECTIONS; STRATIGRAPHIC CHARTS

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BLEACHING OF A BARYTES ORE FROM CANADIAN INDUSTRIAL MINERALS, LIMITED, WALTON, NOVA SCOTIA, BY CANADA DEPT MINES, 1947. 9 PAGES (MINES BRANCH INVESTIGATION NO. 2161)

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SCREEN ANALYSIS OF BARITE ORE FROM WALTON, NOVA SCOTIA, BY CANADA DEPT MINES, 1946. 3 PAGES (MINES BRANCH INVESTIGATION NO. 2106)

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INTERIM REPORT ON THE CONCENTRATION OF BARYTES FROM CANADIAN INDUSTRIAL MINERALS LIMITED, WALTON, NOVA SCOTIA, BY CANADA DEPT MINES, 1945. 5 PAGES (MINES BRANCH INVESTIGATION 1965)

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THE PREPARATION OF A SAND FROM CAPE BRETON, NOVA SCOTIA, BY R. K. CARNOCHAN, 1931. 10 PAGES

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A REVIEW OF THE COAL PROPERTIES OPERATED BY THE DOMINION STEEL AND COAL COMPANIES, BY L. FROST, S. WAREHAM, 1978. 172 PAGES (DOSCO INTERNAL REPORT)

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COAL FROM FOUR STAR MINE, TRACEY SEAM, SYDNEY AREA, NOVA SCOTIA, BY E. SWARTZMAN, T. E. TIBBETTS, 1954. 50 PAGES; 1 MAP (COAL SAMPLE LOCATION; MINE SURFACE PLANS); FREQUENCY DISTRIBUTION GRAPHS; STRATIGRAPHIC COLUMNS (MINES BRANCH REPORT NO. 150)

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REPORT ON CLEANING PERFORMANCE TEST CONDUCTED AT THE FRANKLIN MINE PREPARATION PLANT OF BRAS D'OR COAL COMPANY, LTD., BRAS D'OR, NOVA SCOTIA, BY E. SWARTZMAN, 1952. 45 PAGES; FREQUENCY DISTRIBUTION GRAPHS; HISTOGRAMS

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STUDY OF COAL FROM NO. 1B MINE, PHALEN SEAM, SYDNEY AREA, NOVA SCOTIA, BY E. SWARTZMAN, 1947. 20 PAGES (MINES BRANCH PHYSICAL AND CHEMICAL SURVEY REPORT NO. 126)

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PRELIMINARY TESTS ON A MANGANESE ORE FROM SALMON RIVER, GUYSBOROUGH COUNTY, NOVA SCOTIA, SUBMITTED BY J. E. DAWE, MULGRAVE, NOVA SCOTIA, BY G. O. HAYSLIP, 1954. 7 PAGES

721

CONCENTRATION TESTS ON A SAMPLE OF WAD MANGANESE ORE FROM CHARLOTTE LAKE, HALIFAX COUNTY, NOVA SCOTIA, SUBMITTED BY STRATMAT LIMITED, MONTREAL, QUEBEC, BY J. D. JOHNSTON, 1956. 11 PAGES; PHOTOMICROGRAPHS (MINES BRANCH TEST REPORT NO. 817-OD)

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STUDY OF CHANNEL SAMPLES FROM NO. 2 MINE, PHALEN SEAM, SYDNEY AREA, NOVA SCOTIA, BY E. SWARTZMAN, 1950. 19 PAGES; 1 MAP (COAL SAMPLE LOCATION; MINE SURFACE PLANS); FREQUENCY DISTRIBUTION GRAPHS (MINES BRANCH PHYSICAL AND CHEMICAL SURVEY REPORT NO. 143)

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STUDY OF COAL FROM NO. 16 MINE, PHALEN SEAM, SYDNEY AREA, NOVA SCOTIA, OPERATED BY DOMINION COAL CO. LTD., SYDNEY, NOVA SCOTIA, BY E. SWARTZMAN, 1948. 82 PAGES; 1 MAP (COAL SAMPLE LOCATION; MINE SURFACE PLANS); FREQUENCY DISTRIBUTION GRAPHS (MINES BRANCH PHYSICAL AND CHEMICAL SURVEY REPORT NO. 136)

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REPORT ON THE BENEFICIATION OF SALT FROM THE MALGASH SALT COMPANY, LIMITED, NEW GLASGOW, NOVA SCOTIA, TO MAKE A PRODUCT SUITABLE FOR THE FISHING INDUSTRY, BY W. T. TURRALL, C. H. FREEMAN, H. FRECHETTE, 1943. 21 PAGES (MINES BRANCH INVESTIGATION NO 4304.)

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MANGANESE ORE FROM NEAR LAKE CHARLOTTE, NOVA SCOTIA, BY CANADA DEPT MINES, 1941. 4 PAGES (MINES BRANCH INVESTIGATION NO 1111.)

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SPLITS IN THE PHALEN SEAM IN THE GLACE BAY AND NEW WATERFORD DISTRICTS OF THE SYDNEY COALFIELD, CAPE BRETON ISLAND, NOVA SCOTIA, BY T. B. HAITES, 1949. 33 PAGES

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COPPER ORE FROM COPPER LAKE, ANTIGONISH COUNTY, NOVA SCOTIA, BY CANADA DEPT MINES, 1937. 6 PAGES

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CONCENTRATION TESTS ON A SAMPLE OF SCHEELITE ORE FROM LAKE CHARLOTTE, HALIFAX COUNTY, NOVA SCOTIA, BY CANADA DEPT MINES, 1940. 8 PAGES

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THE FLOTATION CONCENTRATION OF COPPER-LEAD-ZINC ORE FROM THE STIRLING MINE, NOVA SCOTIA, BY CANADA DEPT MINES, 1937. 14 PAGES (MINES BRANCH REPORT NO. 731)

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FLOTATION CONCENTRATION OF SYLVITE IN A SYLVITE-HALITE PRODUCT FROM A FRACTIONAL-CRYSTALLIZATION OF A BRINE FROM THE MALAGASH SALT COMPANY, MALAGASH, NOVA SCOTIA, BY CANADA DEPT MINES, 1941. 9 PAGES (MINES BRANCH INVESTIGATION NO. 1034)

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FINAL REPORT ON THE CONCENTRATION OF BARYTES TAILINGS FROM CANADIAN INDUSTRIAL MINERALS LIMITED, WALTON, NOVA SCOTIA, BY CANADA DEPT MINES, 1946. 8 PAGES (MINES BRANCH INVESTIGATION NO. 1992)

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GRAVITY CONCENTRATION AND FLOTATION TESTS ON A MANGANESE ORE FROM HUCLIF PORCUPINE MINES LIMITED, GUYSBOROUGH COUNTY, NOVA SCOTIA, BY M. W. TATE, 1954. 14 PAGES; PHOTOMICROGRAPHS (MINES BRANCH INVESTIGATION NO. MD3033)

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REPORT ON THE BENEFICIATION OF SANDSTONE: INVESTIGATION FOR THE RECOVERY OF GLASS SAND FROM NOVA SCOTIA SANDSTONE, BY R. K. COLLINGS, 1953. 5 PAGES (MINES BRANCH I. M. REPORT NO. 164)

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EXPERIMENTAL TESTS ON BARITE FROM STRATHLORNE, NOVA SCOTIA, BY R. K. CARNOCHAN, 1933. 6 PAGES (MINES BRANCH REPORT NO. 471)

APPENDIX III

OPEN FILE MAPS FOR 1985

OPEN FILE MAPS FOR 1985

55-001

AIRBORNE MAGNETIC MAP OF THE SALMON RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 241G)

55-002

AIRBORNE MAGNETIC MAP OF THE FOREST HILL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 241G)

55-003

AIRBORNE MAGNETIC MAP OF THE GUYSBOROUGH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 241G)

55-004

AIRBORNE MAGNETIC MAP OF THE FOX ISLAND MAIN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 237G)

55-005

AIRBORNE MAGNETIC MAP OF THE HALFWAY COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 237G)

55-006

AIRBORNE MAGNETIC MAP OF THE MANCHESTER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 237G)

55-007

AIRBORNE MAGNETIC MAP OF THE CHEDABUCTO BAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 237G)

55-008

AIRBORNE MAGNETIC MAP OF THE POINT MICHAUD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 236G)

55-009

AIRBORNE MAGNETIC MAP OF THE D'ESCOUSSE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 236G)

55-010

AIRBORNE MAGNETIC MAP OF THE ST. PETERS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 236G)

55-011

AIRBORNE MAGNETIC MAP OF THE GRAND RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 236G)

55-012

AIRBORNE MAGNETIC MAP OF THE ARICHAT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 238G)

55-013

AIRBORNE MAGNETIC MAP OF THE PORT HAWKESBURY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 238G)

55-014

AIRBORNE MAGNETIC MAP OF THE CREIGNISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 238G)

55-015

AIRBORNE MAGNETIC MAP OF THE WEST BAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 238G)

55-016

AIRBORNE MAGNETIC MAP OF THE RIVER DENYS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 239G)

55-017

AIRBORNE MAGNETIC MAP OF THE JUDIQUE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 239G)

55-018

AIRBORNE MAGNETIC MAP OF THE GLENCOE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 239G)

55-019

AIRBORNE MAGNETIC MAP OF THE WHYCOCOMAGH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 239G)

55-020

AIRBORNE MAGNETIC MAP OF THE LOCH LOMOND (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 235G)

55-021

AIRBORNE MAGNETIC MAP OF THE MALAGAWATCH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 235G)

55-022

AIRBORNE MAGNETIC MAP OF THE GRAND NARROWS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 235G)

55-023

AIRBORNE MAGNETIC MAP OF THE ESKASONI AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 235G)

55-024

AIRBORNE MAGNETIC MAP OF THE GABARUS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 234G)

55-025

AIRBORNE MAGNETIC MAP OF THE VICTORIA BRIDGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 234G)

55-026

AIRBORNE MAGNETIC MAP OF THE MIRA AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 234G)

55-027

AIRBORNE MAGNETIC MAP OF THE MARION BRIDGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 234G)

55-028

AIRBORNE MAGNETIC MAP OF THE BROUGHTON AREA (1 31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 228G)

55-029

AIRBORNE MAGNETIC MAP OF THE GLACE BAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 228G)

55-030

AIRBORNE MAGNETIC MAP OF THE ALBERT BRIDGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 227G)

55-031

AIRBORNE MAGNETIC MAP OF THE COXHEATH AREA (1.31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 227G)

55-032

AIRBORNE MAGNETIC MAP OF THE GEORGES RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 227G)

55-033

AIRBORNE MAGNETIC MAP OF THE SYDNEY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 227G)

55-034

AIRBORNE MAGNETIC MAP OF THE LOW POINT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 226G)

55-035

AIRBORNE MAGNETIC MAP OF THE BRAS D'OR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 226G)

55-036

AIRBORNE MAGNETIC MAP OF THE COPPER LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1955. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 241G)

57-001

AIRBORNE MAGNETIC MAP OF THE YARMOUTH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 601G)

57-002

AIRBORNE MAGNETIC MAP OF THE HEBRON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 601G)

57-003

AIRBORNE MAGNETIC MAP OF THE BARRINGTON PASSAGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 605G)

57-004

AIRBORNE MAGNETIC MAP OF THE MUTTON ISLANDS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 605G)

57-005

AIRBORNE MAGNETIC MAP OF THE QUINAN LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 606G)

57-006

AIRBORNE MAGNETIC MAP OF THE TUSKET AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 606G)

57-007

AIRBORNE MAGNETIC MAP OF THE DEERFIELD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 606G)

57-008

AIRBORNE MAGNETIC MAP OF THE MIKCHICKHE-CHEWAGATHA LAKES AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 606G)

57-009

AIRBORNE MAGNETIC MAP OF THE SABLE RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 608G)

57-010

AIRBORNE MAGNETIC MAP OF THE SHELBURNE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 608G)

57-011

AIRBORNE MAGNETIC MAP OF THE MIDDLE OHIO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 608G)

57-012

AIRBORNE MAGNETIC MAP OF THE TIDNEY RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 608G)

57-013

AIRBORNE MAGNETIC MAP OF THE PORT HEBERT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 609G)

57-014

AIRBORNE MAGNETIC MAP OF THE PORT MOUTON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 609G)

57-015

AIRBORNE MAGNETIC MAP OF THE WHITE POINT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 609G)

57-016

AIRBORNE MAGNETIC MAP OF THE LA HAVRE ISLANDS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 612G)

57-017

AIRBORNE MAGNETIC MAP OF THE LIVERPOOL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 613G)

57-018

AIRBORNE MAGNETIC MAP OF THE MERSEY RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 613G)

57-019

AIRBORNE MAGNETIC MAP OF THE MIDDLEFIELD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 613G)

57-020

AIRBORNE MAGNETIC MAP OF THE MILL VILLAGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 613G)

57-021

AIRBORNE MAGNETIC MAP OF THE JORDAN LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 614G)

57-022

AIRBORNE MAGNETIC MAP OF THE ROSEWAY RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 614G)

57-023

AIRBORNE MAGNETIC MAP OF THE TOBEATIC LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 614G)

57-024

AIRBORNE MAGNETIC MAP OF THE LAKE ROSSIGNOL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 614G)

57-025

AIRBORNE MAGNETIC MAP OF THE RUSHMERE LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 615G)

57-026

AIRBORNE MAGNETIC MAP OF THE KEMPTVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 615G)

57-027

AIRBORNE MAGNETIC MAP OF THE WENTWORTH LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 615G)

57-028

AIRBORNE MAGNETIC MAP OF THE NAPIER RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 615G)

57-029

AIRBORNE MAGNETIC MAP OF THE SPORTING LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 616G)

57-030

AIRBORNE MAGNETIC MAP OF THE NEW FRANCE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 616G)

57-031

AIRBORNE MAGNETIC MAP OF THE WEYMOUTH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 616G)

57-032

AIRBORNE MAGNETIC MAP OF THE SISSIBOO LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 616G)

57-033

AIRBORNE MAGNETIC MAP OF THE WHITEBURN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 617G)

57-034

AIRBORNE MAGNETIC MAP OF THE PESKOWESK LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 617G)

57-035

AIRBORNE MAGNETIC MAP OF THE FROZEN OCEAN LAKE AREA (1:31680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 617G)

57-036

AIRBORNE MAGNETIC MAP OF THE KEJIMKUJIK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 617G)

57-037

AIRBORNE MAGNETIC MAP OF THE LEIPSIGATE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 618G)

57-038

AIRBORNE MAGNETIC MAP OF THE MOLEGA AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 618G)

57-039

AIRBORNE MAGNETIC MAP OF THE BROOKFIELD MINES AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 618G)

57-040

AIRBORNE MAGNETIC MAP OF THE BRIDGEWATER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 618G)

57-041

AIRBORNE MAGNETIC MAP OF THE CROSS ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 619G)

57-042

AIRBORNE MAGNETIC MAP OF THE INDIAN PATH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 619G)

57-043

AIRBORNE MAGNETIC MAP OF THE LUNENBURG AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 619G)

57-044

AIRBORNE MAGNETIC MAP OF THE TANCOOK ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 619G)

57-045

AIRBORNE MAGNETIC MAP OF THE HECTANOOGA AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 610G)

57-046

AIRBORNE MAGNETIC MAP OF THE METEGHAN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 610G)

57-047

AIRBORNE MAGNETIC MAP OF THE BRIER ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1957. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 610G)

60-001

AEROMAGNETIC COMPILATION MAP OF CAPE BRETON ISLAND (1:253 440), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE)

60-002

AIRBORNE MAGNETIC MAP OF THE PROSPECT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 774G)

60-003

AIRBORNE MAGNETIC MAP OF THE SAMBRO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 774G)

60-004

AIRBORNE MAGNETIC MAP OF THE GLEN MARGARET AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 789G)

60-005

AIRBORNE MAGNETIC MAP OF THE FRENCH VILLAGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 789G)

60-006

AIRBORNE MAGNETIC MAP OF THE HALIFAX AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 789G)

60-007

AIRBORNE MAGNETIC MAP OF THE WAVERLEY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 790G)

60-008

AIRBORNE MAGNETIC MAP OF THE POCKWOCK LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 790G)

60-009

AIRBORNE MAGNETIC MAP OF THE UNIACKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 790G)

60-010

AIRBORNE MAGNETIC MAP OF THE GRAND LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 790G)

60-011

AIRBORNE MAGNETIC MAP OF THE MUSQUODOBOIT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 785G)

60-012

AIRBORNE MAGNETIC MAP OF THE PORTERS LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 785G)

60-013

AIRBORNE MAGNETIC MAP OF THE TANGIER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 780G)

60-014

AIRBORNE MAGNETIC MAP OF THE SHIP HARBOUR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 780G)

60-015

AIRBORNE MAGNETIC MAP OF THE SHEET HARBOUR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 780G)

60-016

AIRBORNE MAGNETIC MAP OF THE BEAVER DAM AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 781G)

60-017

AIRBORNE MAGNETIC MAP OF THE CARIBOU AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 781G)

60-018

AIRBORNE MAGNETIC MAP OF THE OLDHAM AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 785G)

60-019

AIRBORNE MAGNETIC MAP OF THE MEAGHERS GRANT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 785G)

60-020

AIRBORNE MAGNETIC MAP OF THE MOOSE RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 780G)

60-021

AIRBORNE MAGNETIC MAP OF THE UPPER MUSQUODOBOIT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 781G)

60-022

AIRBORNE MAGNETIC MAP OF THE FIFTEEN MILE STREAM AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 781G)

60-023

AIRBORNE MAGNETIC MAP OF THE MIDDLE MUSQUODOBOIT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 786G)

60-024

AIRBORNE MAGNETIC MAP OF THE SHUBENACADIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 786G)

60-025

AIRBORNE MAGNETIC MAP OF THE STEWIACKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 786G)

60-026

AIRBORNE MAGNETIC MAP OF THE HALFWAY BROOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 786G)

60-027

AIRBORNE MAGNETIC MAP OF THE NINE MILE RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 791G)

60-028

AIRBORNE MAGNETIC MAP OF THE WEST GORE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 791G)

60-029

AIRBORNE MAGNETIC MAP OF THE COGMAGUN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 791G)

60-030

AIRBORNE MAGNETIC MAP OF THE KENNETCOOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 791G)

60-031

AIRBORNE MAGNETIC MAP OF THE SELMA AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 792G)

60-032

AIRBORNE MAGNETIC MAP OF THE TENNYCAPE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 792G)

60-033

AIRBORNE MAGNETIC MAP OF THE LONDONDERRY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 792G)

60-034

AIRBORNE MAGNETIC MAP OF THE SMITHFIELD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 787G)

60-035

AIRBORNE MAGNETIC MAP OF THE TRURO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 787G)

60-036

AIRBORNE MAGNETIC MAP OF THE DEBERT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 787G)

60-037

AIRBORNE MAGNETIC MAP OF THE KEMPTOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 787G)

60-038

AIRBORNE MAGNETIC MAP OF THE TRAFALGAR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 762G)

60-039

AIRBORNE MAGNETIC MAP OF THE GLENBERVIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 762G)

60-040

AIRBORNE MAGNETIC MAP OF THE LANSDOWNE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 762G)

60-041

AIRBORNE MAGNETIC MAP OF THE HOPEWELL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 762G)

60-042

AIRBORNE MAGNETIC MAP OF THE MERIGOMISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 840G)

60-043

AIRBORNE MAGNETIC MAP OF THE DUNMAGLASS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 840G)

60-044

AIRBORNE MAGNETIC MAP OF THE NEW GLASGOW AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 763G)

60-045

AIRBORNE MAGNETIC MAP OF THE MOUNT THOM AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 763G)

60-046

AIRBORNE MAGNETIC MAP OF THE SCOTSBURN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 763G)

60-047

AIRBORNE MAGNETIC MAP OF THE PICTOU AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 763G)

60-048

AIRBORNE MAGNETIC MAP OF THE EARLTOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 788G)

60-049

AIRBORNE MAGNETIC MAP OF THE NEW ANNAN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 788G)

60-050

AIRBORNE MAGNETIC MAP OF THE TATAMAGOUCHE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 788G)

60-051

AIRBORNE MAGNETIC MAP OF THE BRULE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 788G)

60-052

AIRBORNE MAGNETIC MAP OF THE FOLLY LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 793G)

60-053

AIRBORNE MAGNETIC MAP OF THE OXFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 793G)

60-054

AIRBORNE MAGNETIC MAP OF THE WENTWORTH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 793G)

60-055

AIRBORNE MAGNETIC MAP OF THE PUGWASH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 825G)

60-056

AIRBORNE MAGNETIC MAP OF THE BECKWITH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 825G)

60-057

AIRBORNE MAGNETIC MAP OF THE SHINIMICAS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 825G)

60-058

AIRBORNE MAGNETIC MAP OF THE MACLEANS POINT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 825G)

60-059

AIRBORNE MAGNETIC MAP OF THE RIVER JOHN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 830G)

60-060

AIRBORNE MAGNETIC MAP OF THE MALAGASH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 830G)

60-061

AIRBORNE MAGNETIC MAP OF THE PICTOU ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 835G)

60-062

AIRBORNE MAGNETIC MAP OF THE TONEY RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 835G)

60-063

AIRBORNE MAGNETIC MAP OF THE MALIGNANT COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 841G)

60-064

AIRBORNE MAGNETIC MAP OF THE CAPE GEORGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 230G)

60-065

AIRBORNE MAGNETIC MAP OF THE MARYVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 230G)

60-066

AIRBORNE MAGNETIC MAP OF THE TROUT RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 1026G)

60-067

AIRBORNE MAGNETIC MAP OF THE MABOU AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 1026G)

60-068

AIRBORNE MAGNETIC MAP OF THE INVERNESS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 1026G)

60-069

AIRBORNE MAGNETIC MAP OF THE LAKE AINSLIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 1026G)

60-070

AIRBORNE MAGNETIC MAP OF THE WILLIAMSDALE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 793G)

60-071

AIRBORNE MAGNETIC MAP OF THE BASS RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 792G)

60-072

AIRBORNE MAGNETIC MAP OF THE NEW GERMANY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 798G)

60-073

AIRBORNE MAGNETIC MAP OF THE HEMFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 798G)

60-074

AIRBORNE MAGNETIC MAP OF THE DALHOUSIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 798G)

60-075

AIRBORNE MAGNETIC MAP OF THE STANBURN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 798G)

60-076

AIRBORNE MAGNETIC MAP OF THE DIGBY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 771G)

60-077

AIRBORNE MAGNETIC MAP OF THE CULLODEN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 771G)

60-078

AIRBORNE MAGNETIC MAP OF THE ANNAPOLIS ROYAL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 771G)

60-079

AIRBORNE MAGNETIC MAP OF THE GRANVILLE FERRY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 770G)

60-080

AIRBORNE MAGNETIC MAP OF THE ALBANY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 782G)

60-081

AIRBORNE MAGNETIC MAP OF THE BRIDGETOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 782G)

60-082

AIRBORNE MAGNETIC MAP OF THE HAMPTON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 782G)

60-083

AIRBORNE MAGNETIC MAP OF THE MIDDLETON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 782G)

60-084

AIRBORNE MAGNETIC MAP OF THE FRAXVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 799G)

60-085

AIRBORNE MAGNETIC MAP OF THE SHELL CAMP LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 799G)

60-086

AIRBORNE MAGNETIC MAP OF THE TORBROOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 799G)

60-087

AIRBORNE MAGNETIC MAP OF THE GASPEREAU LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 799G)

60-088

AIRBORNE MAGNETIC MAP OF THE CHURCH POINT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 611G)

60-089

AIRBORNE MAGNETIC MAP OF THE FREEPORT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 611G)

60-090

AIRBORNE MAGNETIC MAP OF THE LITTLE RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 611G)

60-091

AIRBORNE MAGNETIC MAP OF THE CENTREVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 772G)

60-092

AIRBORNE MAGNETIC MAP OF THE HANTSPORT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 794G)

60-093

AIRBORNE MAGNETIC MAP OF THE WOLFVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 794G)

60-094

AIRBORNE MAGNETIC MAP OF THE CANNING AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 794G)

60-095

AIRBORNE MAGNETIC MAP OF THE PEMBROKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 794G)

60-096

AIRBORNE MAGNETIC MAP OF THE BERWICK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 800G)

60-097

AIRBORNE MAGNETIC MAP OF THE AYLESFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 800G)

60-098

AIRBORNE MAGNETIC MAP OF THE HARBOURVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 800G)

60-099

AIRBORNE MAGNETIC MAP OF THE HALLS HARBOUR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 800G)

60-100

AIRBORNE MAGNETIC MAP OF THE MARGARETSVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 783G)

60-101

AIRBORNE MAGNETIC MAP OF THE ILE HAUTE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 783G)

60-102

AIRBORNE MAGNETIC MAP OF THE SPENCER ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 801G)

60-103

AIRBORNE MAGNETIC MAP OF THE CAPE CHIGNECTO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 801G)

60-104

AIRBORNE MAGNETIC MAP OF THE APPLE RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 801G)

60-105

AIRBORNE MAGNETIC MAP OF THE PORT GREVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 801G)

60-106

AIRBORNE MAGNETIC MAP OF THE CAPE BLOMIDON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 795G)

60-107

AIRBORNE MAGNETIC MAP OF THE PARRSBORO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 795G)

60-108

AIRBORNE MAGNETIC MAP OF THE FIVE ISLANDS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 795G)

60-109

AIRBORNE MAGNETIC MAP OF THE MAPLETON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 796G)

60-110

AIRBORNE MAGNETIC MAP OF THE HARRISON SETTLEMENT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 796G)

60-111

AIRBORNE MAGNETIC MAP OF THE RIVER HEBERT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 796G)

60-112

AIRBORNE MAGNETIC MAP OF THE SPRINGHILL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 796G)

60-113

AIRBORNE MAGNETIC MAP OF THE SHULIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 802G)

60-114

AIRBORNE MAGNETIC MAP OF THE BIRCH COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 802G)

60-115

AIRBORNE MAGNETIC MAP OF THE RAGGED POINT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 802G)

60-116

AIRBORNE MAGNETIC MAP OF THE AMHERST AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 797G)

60-117

AIRBORNE MAGNETIC MAP OF THE MINUDIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 797G)

60-118

AIRBORNE MAGNETIC MAP OF THE TIDNISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 797G)

60-119

AIRBORNE MAGNETIC MAP OF THE MONASTERY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 240G)

60-120

AIRBORNE MAGNETIC MAP OF THE ANTIGONISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 240G)

60-121

AIRBORNE MAGNETIC MAP OF THE CRYSTAL CLIFFS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 240G)

60-122

AIRBORNE MAGNETIC MAP OF THE HAVRE BOUCHER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 240G)

60-123

AIRBORNE MAGNETIC MAP OF THE BALLANTYNES COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 230G)

60-124

AIRBORNE MAGNETIC MAP OF THE HERRING COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1960. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 789G)

61-001

AEROMAGNETIC COMPILATION MAP OF EASTERN MAINLAND NOVA SCOTIA (1:253 440), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1961. 1 MAP (MAGNETIC, AIRBORNE)

61-002

AEROMAGNETIC COMPILATION MAP OF CENTRAL NOVA SCOTIA (1:253 440), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1961. 1 MAP (MAGNETIC, AIRBORNE)

62-001

AEROMAGNETIC COMPILATION MAP OF THE SOUTHWEST PORTION OF NOVA SCOTIA (1:253 440), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1962. 1 MAP (MAGNETIC, AIRBORNE)

62-002

AIRBORNE COMPILATION MAP OF WESTERN MAINLAND NOVA SCOTIA (1:253 440), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1962. 1 MAP (MAGNETIC, AIRBORNE)

66-001

AIRBORNE MAGNETIC MAP OF THE OWLS HEAD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 779G)

66-002

AIRBORNE MAGNETIC MAP OF THE COW BAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 784G)

66-003

AIRBORNE MAGNETIC MAP OF THE LAWRENCETOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 784G)

66-004

AIRBORNE MAGNETIC MAP OF THE CHEZZETCOOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 784G)

66-005

AIRBORNE MAGNETIC MAP OF THE SOBER ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 759G)

66-006

AIRBORNE MAGNETIC MAP OF THE DUFFERIN MINES AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 759G)

66-007

AIRBORNE MAGNETIC MAP OF THE ECUM SECUM AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 759G)

66-008

AIRBORNE MAGNETIC MAP OF THE WHITEHEAD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 231G)

66-009

AIRBORNE MAGNETIC MAP OF THE SHERBROOKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 242G)

66-010

AIRBORNE MAGNETIC MAP OF THE CAPE CANSO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 4882G)

66-011

AIRBORNE MAGNETIC MAP OF THE FRAMBOISE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 233G)

66-012

AIRBORNE MAGNETIC MAP OF THE BICKERTON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 242G)

66-013

AIRBORNE MAGNETIC MAP OF THE WINE HARBOUR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 242G)

66-014

AIRBORNE MAGNETIC MAP OF THE COUNTRY HARBOUR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1966. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 242G)

68-001

AIRBORNE MAGNETIC MAP OF THE LOUISBOURG AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1968. 1 MAP (MAGNETIC, AIRBORNE) (THIS MAP ENLARGED FROM GSC 1 INCH TO 1 MILE AEROMAGNETIC MAP 232G)

85-01

THESIS STUDY LOCATIONS IN NOVA SCOTIA, BY D. B. HOPPER, D. R. MACDONALD, D. A. WILKINSON, 1985. 1 MAP (GEOLOGICAL; STUDY AREA LOCATION)

85-02

COMPILATION OF MINERAL RIGHTS IN NOVA SCOTIA, BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, 1985. 1 MAP (EXPLORATION ACTIVITY LOCATION)

85-04

GEOLOGICAL MAP OF THE CENTRE BURLINGTON-AVONDALE AREA, HANTS COUNTY, NOVA SCOTIA (1:10 000), BY S. A. FERGUSON, 1985. 1 MAP (DRILLHOLE LOCATION; GEOLOGICAL; QUARRY LOCATION)

85-05

GEOLOGICAL MAP OF THE UPPER BURLINGTON-BROOKLYN AREA, HANTS COUNTY, NOVA SCOTIA (1:10 000), BY S. A. FERGUSON, 1985. 1 MAP (GEOLOGICAL; QUARRY LOCATION)

85-06

GEOLOGICAL MAP OF THE DAVIDSON LAKE-BENJAMIN MILL AREA, HANTS COUNTY, NOVA SCOTIA (1:10 000), BY S. A. FERGUSON, 1985. 1 MAP (DRILLHOLE LOCATION; GEOLOGICAL)

85-07

GEOLOGICAL MAP OF THE FALMOUTH FORKS AREA, HANTS COUNTY, NOVA SCOTIA (1:10 000), BY S. A. FERGUSON, 1985. 1 MAP (DRILLHOLE LOCATION; GEOLOGICAL)

85-08

GEOLOGICAL MAP OF THE WINDSOR-MARTOCK AREA, HANTS COUNTY, NOVA SCOTIA (1:10 000), BY S. A. FERGUSON, 1985. 1 MAP (DRILLHOLE LOCATION; GEOLOGICAL; METALLIC MINERAL LOCATION; QUARRY LOCATION)

85-09

GEOLOGICAL MAP OF THE ST. CROIX-PANUKE LAKE AREA, HANTS COUNTY, NOVA SCOTIA (1:10 000), BY S. A. FERGUSON, 1985. 1 MAP (GEOLOGICAL; QUARRY LOCATION)

ND-001

AIRBORNE MAGNETIC MAP OF THE LISCOMB AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-002

AIRBORNE MAGNETIC MAP OF THE LOCHABER MINES AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-003

AIRBORNE MAGNETIC MAP OF THE BASS RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-004

AIRBORNE MAGNETIC MAP OF THE LONDONDERRY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-005

AIRBORNE MAGNETIC MAP OF THE DEBERT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-006

AIRBORNE MAGNETIC MAP OF THE KEMPTOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-007

AIRBORNE MAGNETIC MAP OF THE LANSDOWNE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-008

AIRBORNE MAGNETIC MAP OF THE HOPEWELL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-009

AIRBORNE MAGNETIC MAP OF THE CALEDONIA AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-010

AIRBORNE MAGNETIC MAP OF THE GARDEN OF EDEN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-011

AIRBORNE MAGNETIC MAP OF THE LOCHABER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-012
AIRBORNE MAGNETIC MAP OF THEMARSHY HOPE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-013

AIRBORNE MAGNETIC MAP OF THE BARNEY RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-014

AIRBORNE MAGNETIC MAP OF THE MERIGOMISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-015

AIRBORNE MAGNETIC MAP OF THE DUNMAGLASS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-016

AIRBORNE MAGNETIC MAP OF THE MOUNT THOM AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-017

AIRBORNE MAGNETIC MAP OF THE SCOTSBURN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-018

AIRBORNE MAGNETIC MAP OF THE EARLTOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-019

AIRBORNE MAGNETIC MAP OF THE NEW ANNAN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-020

AIRBORNE MAGNETIC MAP OF THE TATAMAGOUCHE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-021

AIRBORNE MAGNETIC MAP OF THE BRULE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-022

AIRBORNE MAGNETIC MAP OF THE POLLY LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-023

AIRBORNE MAGNETIC MAP OF THE WILLIAMSDALE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-024

AIRBORNE MAGNETIC MAP OF THE OXFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-025

AIRBORNE MAGNETIC MAP OF THE WENTWORTH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-026

AIRBORNE MAGNETIC MAP OF THE MALIGNANT COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-027

AIRBORNE MAGNETIC MAP OF THE POINT MICHAUD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-028

AIRBORNE MAGNETIC MAP OF THE D'ESCOUSSE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-029

AIRBORNE MAGNETIC MAP OF THE ST. PETERS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-030

AIRBORNE MAGNETIC MAP OF THE GRAND RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-031

AIRBORNE MAGNETIC MAP OF THE FRAMBOISE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-032

AIRBORNE MAGNETIC MAP OF THE FOURCHU HEAD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-033

AIRBORNE MAGNETIC MAP OF THE ARICHAT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-034

AIRBORNE MAGNETIC MAP OF THE PORT HAWKESBURY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-035

AIRBORNE MAGNETIC MAP OF THE CREIGNISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-036

AIRBORNE MAGNETIC MAP OF THE WEST BAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-037

AIRBORNE MAGNETIC MAP OF THE MARYVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-038

AIRBORNE MAGNETIC MAP OF THE RIVER DENYS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-039

AIRBORNE MAGNETIC MAP OF THE JUDIQUE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-040

AIRBORNE MAGNETIC MAP OF THE CAPE GEORGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-041

AIRBORNE MAGNETIC MAP OF THE WHYCOCOMAGH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-042

AIRBORNE MAGNETIC MAP OF THE LOCH LOMOND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-043

AIRBORNE MAGNETIC MAP OF THE MALAGAWATCH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-044

AIRBORNE MAGNETIC MAP OF THE GRAND NARROWS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-045

AIRBORNE MAGNETIC MAP OF THE ESKASONI AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-046

AIRBORNE MAGNETIC MAP OF THE GABARUS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-047

AIRBORNE MAGNETIC MAP OF THE VICTORIA BRIDGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-048

AIRBORNE MAGNETIC MAP OF THE MIRA AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-049

AIRBORNE MAGNETIC MAP OF THE MARION BRIDGE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-050

AIRBORNE MAGNETIC MAP OF THE FRAMBOISE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-051

AIRBORNE MAGNETIC MAP OF THE BADDECK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-052

AIRBORNE MAGNETIC MAP OF THE MIDDLE RIVER AREA (1.31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-053

AIRBORNE MAGNETIC MAP OF THE BOULARDERIE ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, NO DATE. 1 MAP (MAGNETIC, AIRBORNE)

ND-054

AIRBORNE MAGNETIC MAP OF THE PORT HOOD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-055

AIRBORNE MAGNETIC MAP OF THE SAINT ROSE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-056

AIRBORNE MAGNETIC MAP OF THE BROAD COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-057

AIRBORNE MAGNETIC MAP OF THE MARGAREE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-058

AIRBORNE MAGNETIC MAP OF THE ST. ANNS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-059

AIRBORNE MAGNETIC MAP OF THE LAKE O'LAW AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-060

AIRBORNE MAGNETIC MAP OF THE KING ROSS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-061

AIRBORNE MAGNETIC MAP OF THE INDIAN RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-062

AIRBORNE MAGNETIC MAP OF THE CIBOUX ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-063

AIRBORNE MAGNETIC MAP OF THE WRECK COVE AREA (1.31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-064

AIRBORNE MAGNETIC MAP OF THE INGONISH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-065

AIRBORNE MAGNETIC MAP OF THE GISBORNE LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-066

AIRBORNE MAGNETIC MAP OF THE ROCKY BROOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-067

AIRBORNE MAGNETIC MAP OF THE CHETICAMP RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-068

AIRBORNE MAGNETIC MAP OF THE DAUPHINEE BROOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-069

AIRBORNE MAGNETIC MAP OF THE GRAND ETANG AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-070

AIRBORNE MAGNETIC MAP OF THE ASPY RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-071

AIRBORNE MAGNETIC MAP OF THE PLEASANT BAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-072

AIRBORNE MAGNETIC MAP OF THE POLLETT COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-073

AIRBORNE MAGNETIC MAP OF THE NEIL HARBOUR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-074

AIRBORNE MAGNETIC MAP OF THE DINGWALL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-075

AIRBORNE MAGNETIC MAP OF THE CAPE NORTH AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-076

AIRBORNE MAGNETIC AREA OF THE CAPE ST. LAWRENCE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-077

AIRBORNE MAGNETIC MAP OF THE GOLD RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-078

AIRBORNE MAGNETIC MAP OF THE HUBBARDS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY, NO DATE. 1 MAP (MAGNETIC, AIRBORNE)

ND-079

AIRBORNE MAGNETIC MAP OF THE NEW GERMANY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-080

AIRBORNE MAGNETIC MAP OF THE HEMFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-081

AIRBORNE MAGNETIC MAP OF THE DALHOUSIE AREA (1.31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-082

AIRBORNE MAGNETIC MAP OF THE STANBURN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-083

AIRBORNE MAGNETIC MAP OF THE MEDWAY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-084

AIRBORNE MAGNETIC MAP OF THE MILFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-085

AIRBORNE MAGNETIC MAP OF THE PEROTT SETTLEMENT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-086

AIRBORNE MAGNETIC MAP OF THE ALBANY CROSS AREA (1:31 680),BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-087

AIRBORNE MAGNETIC MAP OF THE BEAR RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-088

AIRBORNE MAGNETIC MAP OF THE DIGBY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-089

AIRBORNE MAGNETIC MAP OF THE CULLODEN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-090

AIRBORNE MAGNETIC MAP OF THE ANNAPOLIS ROYAL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-091

AIRBORNE MAGNETIC MAP OF THE GRANVILLE FERRY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-092

AIRBORNE MAGNETIC MAP OF THE ALBANY AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-093

AIRBORNE MAGNETIC MAP OF THE BRIDGETOWN AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-094

AIRBORNE MAGNETIC MAP OF THE HAMPTON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-095

AIRBORNE MAGNETIC MAP OF THE MIDDLETON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-096

AIRBORNE MAGNETIC MAP OF THE FRAXVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-097

AIRBORNE MAGNETIC MAP OF THE SHELL CAMP LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-098

AIRBORNE MAGNETIC MAP OF THE TORBROOK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-099

AIRBORNE MAGNETIC MAP OF THE GASPEREAU LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

ND-100

AIRBORNE MAGNETIC MAP OF THE PANUKE LAKE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-101

AIRBORNE MAGNETIC MAP OF THE WALLABACK AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-102

AIRBORNE MAGNETIC MAP OF THE DEAN AND CHAPTER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-103

AIRBORNE MAGNETIC MAP OF THE WINDSOR AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-104

AIRBORNE MAGNETIC MAP OF THE AYLESFORD AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-105

AIRBORNE MAGNETIC MAP OF THE SPENCER ISLAND AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-106

AIRBORNE MAGNETIC MAP OF THE CAPE CHIGNECTO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-107

AIRBORNE MAGNETIC MAP OF THE APPLE RIVER AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-108

AIRBORNE MAGNETIC MAP OF THE PORT GREVILLE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-109

AIRBORNE MAGNETIC MAP OF THE PARRSBORO AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-110

AIRBORNE MAGNETIC MAP OF THE FIVE ISLANDS AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-111

AIRBORNE MAGNETIC MAP OF THE MAPLETON AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-112

AIRBORNE MAGNETIC MAP OF THE HARRISON SETTLEMENT AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-113

AIRBORNE MAGNETIC MAP OF THE SPRINGHILL AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-114

AIRBORNE MAGNETIC MAP OF THE SHULIE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

MD-115

AIRBORNE MAGNETIC MAP OF THE BIRCH COVE AREA (1:31 680), BY NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY. 1 MAP (MAGNETIC, AIRBORNE)

APPENDIX IV

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

PUBLICATIONS AND MAPS FOR SALE

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY PUBLICATIONS AND MAPS FOR SALE

PAPERS

Paper 76-1	Structural Model for the Saddle Reef and Associated Veins in the Meguma Group, Nova Scotia, by J. D. Keppie, 34 pages & 2 maps.	$3.00
Paper 76-2	Geological Data Collection in the Nova Scotia Department of Mines, by J. D. Keppie and A. K. Chatterjee, 15 pages.	$0.50
Paper 76-3	Interpretation of P.P.I. Radar Imagery of Nova Scotia, by J. D. Keppie, 31 pages & map.	$1.25
Paper 76-4	Geology, Geochemistry and Mineral Occurrences of the Northeast Margaree River Drainage Basin in parts of Inverness and Victoria Counties, Cape Breton, Nova Scotia, by B. E. MacNabb, J. H. Fowler and T. G. N. Covert, 30 pages & 12 maps.	$15.00
Paper 76-5	Guide to the Invertebrate Fauna of the Windsor Group in Atlantic Canada, by R. G. Moore and R. J. Ryan, 57 pages.	$2.25
Paper 77-1	Tectonics of Southern Nova Scotia, by J. D. Keppie, 34 pages (Reprinted 1980).	$3.00
Paper 77-3	Plate Tectonic Interpretation of Paleozoic World Maps (with Emphasis on Circum-Atlantic Orogens and Southern Nova Scotia), by J. D. Keppie, 45 pages (Reprinted 1982). (Microfiche $1.50)	$4.00
Paper 77-6	Sand and Gravel Resources of Pictou County, by J. H. Fowler and G. B. Dickie, 42 pages & map.	$4.00
Paper 77-7	Tungsten Mineralization in the Carbonate Rocks of the George River Group, Cape Breton Island, Nova Scotia, by A. K. Chatterjee, 26 pages.	$3.50
Paper 78-1	Geology of the Ecum Secum Area, Halifax and Guysborough Counties, Nova Scotia, by D. McBride, 12 pages.	$1.00
Paper 78-2	Age of Igneous Rocks along the Lennox Passage - St. Peter's Lineament, Southern Cape Breton Island, by J. D. Keppie and P. K. Smith, 10 pages.	$1.00
Paper 78-3	Geology of the Giant Lake Area, Southeastern Cape Breton Island, Nova Scotia, by P. K. Smith, 30 pages & map.	$2.00
Paper 78-4	Some Middle Devonian to Lower Carboniferous Rocks of Cape George, Nova Scotia, by J. D. Keppie, P. S. Giles, and R. C. Boehner, 37 pages.	$2.00
Paper 78-5	Petrology of the Early Silurian Dunn Point and McGillivray Brook Formations, Arisaig, Nova Scotia, by J. D. Keppie, J. Dostal and M. Zentilli, 20 pages.	$1.00

NSDME Report 86-1

Paper 79-1	Petrology of the Late Precambrian Fourchu Group in the Louisbourg Area, Cape Breton Island, by J. D. Keppie, J. Dostal and J. B. Murphy, 18 pages.	$1.50
Paper 79-2	Opencast Coal Reserves at Springhill, by B. Ward, 40 pages & 4 maps.	$4.50
Paper 79-3	Geology of the Meat Cove Zinc Deposit, Cape Breton Island, by A. K. Chatterjee, 27 pages.	$2.00
Paper 79-4	Minor and Trace Element Variations in Wisconsinan Tills, Eastern Shore Region, Nova Scotia, by R. R. Stea and J. H. Fowler, 30 pages & 3 maps.	$10.00
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